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## NEWS SUMMARY

### GENERAL

#### Israeli dies in raid on Lebanon

An Israeli officer was killed and two soldiers wounded during a raid on the United Nations-controlled area of Southern Lebanon. It was the first Israeli army casualty in operations across the border since the Israeli invasion of Southern Lebanon last year. The army blew up two houses they claimed were being used by Palestinian guerrillas. A Security Council debate on Palestinian rights was due to take place in New York yesterday despite efforts by Andrew Young, U.S. Ambassador to the UN, to get the talks postponed.

#### Rhodesia attacks

Zimbabwe Rhodesia said its air and ground forces had launched a further six attacks against alleged Patriotic Front guerrilla targets in neighbouring Zambia. The attacks come only three weeks before planned settlement talks in London.

#### U.S. talks off

Northern Ireland Secretary Humphrey Atkins turned down New York Governor Hugh Carey's invitation to discuss Ulster with Michael O'Kennedy, Irish Foreign Minister in the U.S. Back Page

#### Dino arrested

Orestes Barbonis, 17, was taken by police from Huntingdon to Lowestoft where he is expected to face charges today. The youth, known as Dino, was arrested at a road block in Northamptonshire.

#### Sensitive cuts

Ministers are likely to adopt a sensitive approach towards Civil Service manpower cost cuts in a bid to resolve differences between departments, avoid labour disputes, and yet cut public spending in real terms by April, 1982. Back Page

#### Family missing

UK executive Rolf Schild, 55, his wife and 14-year-old daughter, have been reported missing in Sardinia. Police said the London family, who were holidaying on the island, failed to return home after a party.

#### Murder charge

Two brothers extradited from France, have been charged with the murder of Thames Water Authority official John George John Richards, 22, and Joseph 20, will appear before Guildford magistrates today.

#### Hijacker held

A hijacker was arrested after ordering a U.S. aircraft carrying 120 people to return to Portland, Oregon, four hours after it had taken off for Los Angeles. James Albee, 29, said he hijacked the jet because he wanted to be admitted to a mental hospital.

#### Kurdish unrest

Turkish Premier Bulent Ecevit sent his Interior Minister to Eastern Turkey to investigate reports of unrest and terrorist activity among the Kurdish minority there, aimed at winning independence from Ankara. Page 3

#### Briefly

First day of Cornhill Test match between England and India at Arthington Motor 111 4  
Deer to be picketed by ASTMS in a pay dispute with the insurance company. Four of the 10 prisoners staging a rooftop protest at Peterhead jail have come down voluntarily. Police are hunting a hit-and-run driver who killed a pregnant woman and her baby nephew outside their north London home. Armed robbers seized valuables worth an estimated £270,000 in a raid on a Madrid jewellery workshop.

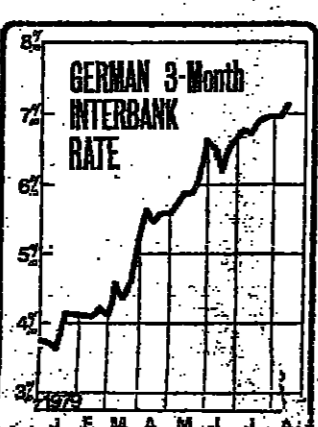
### BUSINESS

#### Gold at record; Equities off 2.6

**GOLD** rose 8½ to a record closing level of \$309½ in London.  
**STERLING** rose 60 points to close at \$2.245 and its trade-weighted index finished at 71.0 from 70.8. Dollar's index fell to 84.7 from 84.8.  
**EQUITIES:** The FT 30-share index, 6.2 down at 1 pm, recovered on the ICI interim figures and closed 2.6 down at 463.1.  
**GILTS:** Minor gains in short-dated issues were replaced by losses extending to ½ and the Government Securities Index finished 0.03 down at 72.54.

**WALL STREET** was down 3.25 at 882.59 just before the close.

**BUNDESBANK** is to limit use of the facility enabling banks to borrow funds against securities as collateral, starting



from next month, in a move to limit credit expansion. Page 2  
Money markets, Page 23

**BRITISH RAIL** agreed last night to restore freight trains on East Coast routes pending consultation. Mr. Ray Buckton, ASLEF leader, said he was sure his executive would lift threatened industrial action.

**BRITISH NATIONAL OIL** Corporation will still be in a strong position in the North Sea, despite the sale of assets expected within two months, according to a new industry evaluation. Page 6

**PUBLIC SECTOR** borrowing in the first quarter was running at £2.5bn, equivalent to an annual rate of £11.2bn. But this was well before June Budget measures could take effect. Back Page

**CHINA** is considering encouraging material incentives and competition between enterprises in the hope of achieving higher productivity and improved quality. Back Page

**ROTTERDAM** port was threatened with severe disruption last night following an unofficial strike by tugboat crews. Page 2

**NEW TOWNS** Association is expected to name shortly the three or five estate agents who will handle the £140m sale of English new town property ordered by the Government. Page 6 and Property, Page 7

**GENERAL MOTORS** Corporation of the U.S. is to build a \$300m car engines factory in Austria.

#### COMPANIES

**TARMAC**, building and construction group, has handed over its remaining 40 per cent stake in its loss-making Nigerian offshoot, Cubitts Nigeria. In return, Tarmac will shed responsibility for some of its Nigerian debts. Page 22

House of Fraser second quarter pre-tax profits were down slightly from £6.93m to £6.51m to give a total of £7.84m for the 26 weeks to July 28, compared with £8.32m in the same period last year. Page 22 and Lex, Back Page

#### CHIEF PRICE CHANGES YESTERDAY

(Prices in pence unless otherwise indicated)

RISES		FALLS	
Aero and General	145 + 5	Burton "A"	250 - 10
Arthington Motor	111 + 4	Dalgety	279 - 5
Fitzwilliam Motor	53 + 3	Dalgety "A"	285 - 25
Glaxo	443 + 5	Distillers	220 - 3
Hepworth Ceramic	114 + 4	EMI	300 - 6
Hoffmann (S.)	56 + 3	GUS "A"	93 - 3
ICI	381 + 11	House of Fraser	404 - 12
Mills and Allen	285 + 13	Land Secs.	297 - 4
Style Shoes	93 + 12	McCarthy Pharm.	146 - 4
Whittingham (Wm.)	93 + 13	Smith (W. H.) "A"	172 - 9
Durban Deep	525 + 23	Stag Line	142 - 8
		Woodhead (J.)	99 - 3
		Burmah Oil	140 - 4
		Siebens (UK)	250 - 12
		Bougainville	123 - 6
		Western Mining	160 - 6

## Men at threatened shipyards plan to ban overtime

BY GARETH GRIFFITHS

Workers at shipyards threatened with redundancy by British Shipbuilders are to start an indefinite official overtime ban. It might be extended to other yards and an all-out strike is possible.

The overtime ban was agreed yesterday at a Confederation of Shipbuilding and Engineering Unions conference at Newcastle upon Tyne. The Confederation stiffened its resistance to the redundancies announced last week. British Shipbuilders wants to reduce its merchant shipbuilding workforce by 10,000, making about 6,000 workers redundant. British Shipbuilders met union officials after the conference. They agreed to further meetings in Blackpool from next Wednesday to Saturday during the run-up to the Trades Union Congress. Both sides will discuss the closures and redundancies on a regional basis. The corporation said that the overtime ban fell outside its procedure agreement. Mr. Michael Casey, chief executive and Mr. John Parker, board member for marketing, were unable to attend yesterday's meeting as they were visiting Poland.

Nine bulk carriers for Poland are being built at Govan and Scotstoun Marine and three bulk carriers at Robb Caledon, Dundee. Considerable penalty clauses might be invoked if delivery dates are not met. Mr. John Chalmers, chairman of the confederation's shipbuilding negotiating committee and general secretary of the Boiler-makers' Union gave a warning yesterday that the overtime ban might spread. He said that the Government should be brought into the discussions. The unions have instructed members in all British Shipbuilders' yards not to accept voluntary redundancies. Overtime has been banned this week at several shipyards affected by redundancies. Workers at Govan, Scotstoun Marine, Scott Lithgow and Robb Caledon at Dundee and Sunderland Shipbuilders have imposed overtime bans, as have the Yarrow yards, which are not affected by the closures. Altogether, 17,000 workers are banning overtime in Scotland this week and 4,000 in England.

The yards affected are building 33 ships. Workers at the Cammell Laird yards at Birkenhead and Smith's Dock, on the Tees, are expected to join the overtime ban today or Monday. A series of mass meetings is planned for all the affected yards on Monday. Mr. Sammy Gilmore, the Govan convener, said after the delegate conference that the overtime ban would mean that no ships were launched at Govan, Scotstoun Marine or Yarrow. The conference passed a resolution saying that the planned redundancies were on a totally unwarranted scale and called for fresh negotiations. It also wanted a TUC campaign on jobs and new Government policies on creating jobs. The alternative strategy produced by shop stewards at Govan Shipbuilders was included in a 22-point plan to increase demand for merchant shipping. The unions want more public sector orders, better financial arrangements and subsidies and a wider range of shipbuilding activity.

## Alitalia cancels options for six DC-10s

BY JOHN WYLES IN NEW YORK

ALITALIA, the Italian national airline, is cancelling conditional orders for six McDonnell Douglas DC-10 aircraft. It is believed to be planning a major order with Boeing. Confirming the loss of Alitalia's options, McDonnell Douglas would not speculate on the airline's reasons. It acknowledged that another conditional order, from Egyptair for four DC-10s, was in jeopardy, and that the Egyptian national airline was considering "other alternatives". Alitalia first suspended its tentative orders in mid-June in the wake of the Chicago crash of a DC-10, when the entire American fleet of the aircraft was grounded by Federal order, and foreign-owned DC-10s were not allowed to fly into the U.S. Alitalia's decision is less of a blow than it would have been

if the orders, worth about \$240m, had been firm. However, option orders are more often than not converted into definite purchases and the cancellation is a setback for McDonnell Douglas hopes of a speedy rehabilitation of the aircraft after the Chicago crash. The only firm orders received since the May 25 disaster have been by Varig, the Brazilian national airline, which is buying five DC-10s. McDonnell Douglas has 61 firm orders and 51 options. Boeing would not comment on a report here yesterday that Alitalia was about to place an order for nine of its 747 aircraft, worth about \$475m. According to the report the Italian airline would trade in five old 747s and replace them with nine new ones, four conventional passenger aircraft

and five combination passenger and cargo jets. Paul Betts writes from Rome: In June when Alitalia said it had suspended its planned purchase of the six DC-10s, Sig. Umberto Nordio, the Alitalia chairman, said he was in no position to say whether the company would go ahead with the deal. Although Alitalia signed an initial contract with McDonnell Douglas in May to increase its passenger and cargo fleet, the deal hinged on the approval of the Italian Government and the Alitalia parent company, IRI, the giant Italian State holding group. Alitalia said last night that the Government and IRI had not so far given their approval for the deal, although it refused further comment.

## Lazards buys stake in Spillers

BY CHRISTINE MOIR

LAZARDS, the merchant bank which is advising Dalgety in its bid for Spillers, the flour-miller and food-processor, has spent £2.8m of its own money in buying a 12.3 per cent stake in Spillers through the market. Rowe and Pitman, Dalgety's official stockbroker, has been steadily buying Spillers' shares since the £68m bid was announced last Wednesday. Yesterday it declared a further £2m purchase, bringing the total to 18.1m shares, 12.3 per cent.

Mr. Andrew Turner stressed that Lazards was buying the shares "on its own account". Mr. Turner is both managing director of Dalgety and a non-executive director of Lazards. Lazards is taking the full risk. It has no agreement for Dalgety to take over its stake. The sum that Lazards has spent so far on Spillers' shares represents over 30 per cent of the total shareholders' funds disclosed in the bank's year end balance sheet. In addition to such stated funds, however, merchant banks are permitted to have hidden reserves. Discussing the scale of the purchase, Mr. Turner said: "It is certainly not large in the context of the group to which Lazards belongs."

Lazards is part of S. Pearson and Son, which also owns the Financial Times, Royal Doulton, Logmans, Penguin Books and Madame Tussauds. For Dalgety, Mr. David Donne, the chairman, said that if the company had bought shares itself it might have made it more difficult for its offer to reach the 90 per cent acceptance mark at which it is permitted to buy the remainder compulsorily. Under company law a company cannot accept its own shares in a bid. Thus, if Dalgety itself had bought the Spillers' shares, they would not count toward the level of acceptance, and to reach 90 per cent Dalgety would have had to win acceptance from a higher number of independent shareholders. That rule does not apply to the advising bank. However, as an associate of Dalgety, Lazard cannot buy more than 15 per cent of Spillers through the market without forcing Dalgety to make a cash offer to all shareholders. Purchases on this scale by a bank acting for the bidding company are rare. Lex, Back Page

## ICI and Hoechst increase profits

By Sue Cameron, Chemicals Correspondent

SHARP INCREASES in pre-tax profits and sales volumes were reported yesterday by two of the world's largest chemical companies: the UK's Imperial Chemical Industries and the German-based Hoechst group. ICI's pre-tax profits for the second quarter of this year were £162m, £64m higher than in the first quarter and £23m up on the corresponding period last year. Hoechst's pre-tax profits for the first half were DM 785m (£198m) compared to DM 550m in the first half of last year.

ICI RESULTS FOR THE FIRST HALF OF 1979

	£	% increase on 1978
Pre-tax profits	268m	3.5
Sales	2,567m	15.8
UK sales	1,050m	20
Overseas sales	1,517m	13.2
UK exports	523m	20.2

The main reason for the improvement in ICI's profits compared to the depressed level of the first quarter was an 11 per cent increase in sales volume at home and abroad. Hoechst, whose sales for the first half of 1979 were 7.5 per cent up on last year, reported an increase in sales volumes in all product areas. However, ICI, whose results were accompanied by a 15 per cent rise in the gross interim dividend, expects some downturn in business in the second half of this year. That may not be as sharp as some forecasters have suggested and may not come before the New Year. Much will depend on the exchange rate, still volatile, and the timing and severity of the recession.

ICI's second-quarter results were helped by a significant rise in oil profits, most of the increase coming from the group's stake in the North Sea Ninian field that started production at Christmas. Oil profits jumped from £5m in the first quarter to £17m in the second and are expected to increase further, with higher oil prices and increased crude production from Ninian. Although sterling has strengthened ICI's exports improved in the second quarter to a record £285m. Pre-tax profits for the first half of the year were £260m, £3m higher than last year. Sales (Continued on Back Page)

## Investment in manufacture levels off

BY PETER RIDDELL, ECONOMICS CORRESPONDENT

CAPITAL SPENDING by manufacturing industry appears to have stopped growing in the first half of this year, although investment by the distributive and service sectors remained strong. Department of Industry figures published yesterday suggest that the slowdown in manufacturing investment has come earlier than indicated by recent surveys of spending intentions.

The volume of manufacturing investment in the first half of the year was £1,920m, at 1975 prices and seasonally adjusted. This was roughly 1 per cent lower than in the previous half year and about the same level as 12 months before. This compares with a rise of between 2 and 5 per cent this year above the 1978 level, indicated by the Department of Industry intentions survey in early June. However, the trend may be distorted to some extent by the rapid growth of leasing or rental arrangements, especially in the last couple of years. Expenditure on capital goods acquired for leasing is classified as service investment. In so far as this leasing is to manufacturing companies, there is an apparent switch of expenditure from manufacturing to services.

This may partly explain the buoyancy of distributive and service investment—up 7 per cent between the first two quarters to £2,200m. In the first half of this year expenditure was about 6 per cent higher than a year earlier. This compares with a 5 to 7 per cent rise over the whole of 1979 as projected in the June intentions survey. A further expansion of leasing

is suggested by an 11 per cent rise in investment on vehicles between the last two half-years. But even after adding manufacturing and distributive and service investment together, spending in the first half of the year was just under 3 per cent higher than the average for 1978, compared with an increase of between 3.6 and 6.1 per cent implied by the June survey. It may be too early to say whether this marks a turning point in the investment cycle, but the upturn has lasted for three years, which is longer than usual. Consequently, expenditure may now be at peak levels in view of the expected recession and squeeze on profits and liquidity. Since the first half of 1978 manufacturing investment has risen by 16½ per cent in real terms, and the increase would have been much larger if the fall in British Steel's spending was excluded. Yesterday's figures also showed that the level of stocks held by manufacturers, wholesalers and retailers rose by roughly £270m in the April-June period. But even after the high level of consumer spending ahead of the increase in Value Added Tax in June, wholesalers' stocks rose by £146m in real terms between April and the end of June. This is one of the largest rises on record. Retailers' stocks increased by nearly £70m in the quarter.

## Massey plans issue

BY STEWART FLEMING IN NEW YORK

MASSEY-FERGUSON, the Canadian-based farm equipment manufacturer that has been struggling to overcome heavy losses and seriously weakened finances, announced plans yesterday to raise between £300m and £500m through the issue of preferred shares. The injection of finance on that scale would significantly improve its stretched finances, while analysts who follow the company are hoping for expanding worldwide demand for its products. However, the news of plans to raise new finance was accom-

panied by the announcement that Massey-Ferguson had suffered another operating loss in the third quarter of its present fiscal year. Excluding a \$95.3m tax credit, the company incurred an operating loss in the third quarter of \$41.6m. £ in New York

	Aug. 22	Previous
Spot	\$2.8300-232052.2166-2176	
1 month	0.61-0.56 dis 0.53-0.47 dis	
3 months	0.41-1.36 dis 1.30-1.25 dis	
12 months	0.38-0.22 dis 0.44-0.58 dis	

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EUROPEAN NEWS

Tugmen's strike threatens to stop Rotterdam

By CHARLES BATCHELOR IN AMSTERDAM

A LIGHTNING unofficial strike by tug crews was last night threatening to cause severe disruption in Rotterdam, the largest port in the world. Attempts by strikers to persuade stevedores to stop work have so far been unsuccessful but there is a danger that other groups of workers may follow the tugmen's action, a union official said. About 500 employees of the largest tugboat operator in the harbour, Smit International, stopped work early yesterday morning. After a meeting with the strikers yesterday afternoon the Smit management said it would not give in to their demands. The strikers, who according to the FNV transport union are led by a former union member suspended for attempts to take unofficial action in the past, are demanding an extra Fl 50 (£11.20) a week. A wage agreement meant to last until the end of 1979 was signed only last month between the unions and the employers. The action by crews comes at the same time as a wave of unrest in the meat processing industry where nearly 2,000 workers have come out on an unofficial strike over a claim for extra payment. The FNV, which has since made this strike official said it was surprised by the unofficial stoppages and will decide today what action to take. It is clear however that the union is concerned at developments which represent the rejection of wage agree-

Bundesbank restricts banks' borrowing

By Jonathan Carr in Bonn

THE WEST German Bundesbank has again moved to tighten credit policy and reduce the threat of further inflation. At its meeting in Frankfurt yesterday, the central bank council agreed that further restrictions should be placed on the availability of Lombard credit to the banks. This is the credit the banks obtain from the central bank against the collateral of securities. From September, the banks will only be able to obtain Lombard credit up to a particular limit based on their existing rediscounting facilities. Details of the limit have not so far been given. The move took the markets by surprise—but it fits well into the restrictive policy the Bundesbank has been following for several months. The most recent measures were a rise in discount and Lombard rate, to 5 per cent and 6 per cent respectively, on July 13. The Bundesbank has consistently made clear to feeling the expansion of banks' credit commitments this year has not been in line with the central bank's restrictive target for money supply growth. The banks committed DM 10bn (£2.5bn) in shorter term credit in the first five months of this year against DM 7.5bn in the same period of 1978. There has been an increasing tendency for the banks to meet their commitments by making use of Lombard credit which the Bundesbank sees primarily as a short-term instalment. Hence the central bank's efforts to choke off the use of this facility. It is taking the action against the background of rising concern at inflation which totalled 4.6 per cent in July at an annual rate and is felt certain to go over the 5 per cent mark in coming months. Part of the rise is due to oil and raw material price increases, and the relative weakness of the Deutsche Mark this year, which has increased import prices. But there is also a "home-made" element to the inflation and it is at this in particular that the Bundesbank is aiming.

NEW BASQUE BOMBING CAMPAIGN IN THIRD DAY

More French targets hit in Spain

BY ROBERT GRAHAM IN MADRID

MILITANT BASQUE separatists yesterday bombed French targets inside Spain, for the third day running. This rise in anti-French violence is a reaction to tougher measures by France regarding Spanish Basques living in France. Yesterday a powerful bomb caused extensive damage to the Saragossa branch of the Société Générale's Spanish subsidiary. Another blast damaged an office run by French immigration authorities at Iruun just inside the Spanish border. A third bomb blew up a French number-plated car in San Sebastian. Responsibility for the actions has been claimed by the military wing of ETA, the militant Basque separatist group. Earlier this week, the office of Credit Lyonnais in Bilbao was wrecked by a bomb and a French registered car was blown up by a molotov cocktail. Other attacks this month have included the bombing of Renault showrooms in the Basque country plus an attempt to plant a bomb at the residence of the French consul in Bilbao. The anti-French violence has not been confined solely to the Basque country but has extended also to Barcelona and Madrid. However, yesterday's explosion in Saragossa was the first time such an incident has occurred there. The latest events are directly connected with increased action against known ETA sympathisers or activists in the French side of the Basque country. This month at least five Spaniards living there have had their residence permits

Reksten companies 'siphoned off profits'

By Fay Gjester in Oslo

THE FIRST week of the trial of Mr. Riksten in Bergen has been dominated by the prosecution's detailed explanation of the case against the 81-year-old shipowner, on trial for alleged violations of Norwegian tax and currency laws. So far, as expected, Mr. Reksten has refused to reply to the charges, though he stated when the trial began that he was innocent of them all. He intends to save his arguments for the appeal which he plans to make to a higher court. The initial round in Bergen's municipal court is expected to take about six weeks. Through the first three days of the trial, Mr. Carsten Espelid, the prosecutor, took the court on a guided tour through the history of companies which the State claims Mr. Reksten used first to channel profits abroad, then to acquire assets, and then to acquire the required assets from the Bank of Norway. In outline, the State claims that Reksten used three companies registered abroad—Comwell, Intercontinental and Gartner—to siphon off profits which should have come to the Norwegian-registered Reksten shipping companies. He then used all other companies—Cornhill, Thorshov, Shilling, and Arjan Investment—to acquire substantial shipping assets abroad without the consent of Norway's authorities. Through Palmerston, it is alleged, he bought half the shares in the Anglo-Nordic shipping company, which operates a fleet of ships bought from Zapata Naess in 1973. The other half of Anglo-Nordic is reportedly owned by S and O. In the past, Mr. Reksten has denied having significant ownership interest in the foreign-registered companies which he concedes having operated through management deals. Mr. Espelid hopes to prove that Mr. Reksten was in fact their beneficial owner. Hambro Bank, Mr. Reksten's UK bankers, is alleged to have played a key role in many of these transactions. A letter from the bank's chairman, Sir Charles Hambro, to Mr. Reksten in January 1974, was mentioned in court on Wednesday. Mr. Espelid said the letter stated that Hilmar Reksten controlled 80 per cent of Palmerston, and Hambro 10 per cent. Earlier, the prosecutor said that Hambro lent Palmerston most of the money needed to buy the half share in the Zapata Naess fleet (later renamed Anglo-Nordic).

Tough Canadian line on uranium for Swiss

BY BRIJ KHANDARIA IN GENEVA

SWITZERLAND may have to bow to tough Canadian conditions for the resumption of uranium supplies for its ambitious nuclear energy programme during the next decade. A draft agreement to end a freeze on supplies dating from 1977 has been reached with Canada. This is likely to spark off animated debate within the federal Government which must decide whether it needs the uranium badly enough to accept the terms. Supplies are unlikely to resume until the agreement is approved. The negotiations with Canada were tough and Swiss officials fear Ottawa may refuse further talks aimed at softening its demands if the Swiss Government rejects the accord's main elements. Canada froze uranium deliveries when Switzerland refused to accept changes to an earlier supply agreement. These changes were meant to ensure that the uranium could not be used to develop weapons or be re-exported in a form which might be used for non-peaceful purposes. Switzerland, which plans to rely increasingly on nuclear energy during the rest of this century, has argued that the Canadian demands interfered with its national sovereignty. Canada insists that it must monitor closely, and even demand a ban on Swiss exports of nuclear materials if it feels that Canadian uranium may enable a third country to develop nuclear weapons. These demands are thought to be much tougher than the safeguards usually sought by suppliers of nuclear fuels. The Swiss Government will cut spending next year in an attempt to keep the federal deficit under SwFr 1.5bn (£406m) in the 1980 Budget, writes John Wicks in Zurich. A deficit of SwFr 1.34bn is budgeted for this year. Mr. Georges-André Chevallaz, the Finance Minister, warned earlier this year that there would be substantial deficits in the confederation's accounts as the result of rejection by the electorate of a move to introduce value added tax. As part of a fiscal reform package, this would have enabled the Government to balance the national budget by 1981. He plans to confer with all other ministers to discuss reductions in expenditure. For some years the central Government has been carrying through a savings programme, including cuts in subsidy payments and a freeze on federal administration recruitment. The confederation has had a deficit in its financial account every year since 1971. This

Ceausescu cools conflict

By PAUL LENDVAI IN VIENNA

IN AN attempt to cool the growing conflict between Bucharest and Moscow, President Nicolae Ceausescu, the Romanian President, has made a speech praising the "sacrifices" of the "heroic Soviet soldiers" in liberating his country from German occupation 35 years ago. Addressing generals and party activists he repeatedly pledged that Romania would fulfil its duties both within the Warsaw Pact and under bilateral treaties of mutual assistance concluded with other Eastern Bloc countries. It is regarded as additionally significant that the Romanian leader did not repeat his recent call for a reduction in military expenditure, or his warning that Romania could not increase arms spending beyond existing levels.

William Dullforce reports on general election prospects in Sweden

A campaign in search of issues

Table with 4 columns: Party, Votes in 1976 election, Seats in Parliament, Latest poll rating (June). Rows include Moderates, Centre Party, Liberals, Social Democrats, Communists.

IN SWEDEN'S general election on September 16, the country's voters will decide whether a Socialist or an anti-socialist government is to carry them into the 1980s. The race promises to be more closely run than even the 1978 contest, when the Centre party, Liberals and Moderates (Conservatives) ousted the Social Democrats from office for the first time in 44 years. Yet the campaign has so far been curiously lacklustre. Party strategists are still groping for vote-catching issues and the opening gambits of the political leaders have been unusually tentative. The highlights have included the Social Democrats' championing of the cause of gibberly pickers against pesticide spraying in the forests, and the Moderate party chairman's dust-up with local bureaucracy over the outdoor lavatory at his summer cottage. Thwarted of any real controversies into which to get their teeth, the news media have been worrying an old bone, speculating whether the Social Democrats will get rid of Mr. Olof Palme, their leader and Prime Minister, if they fail to win back power. The party leaders are not generating much heat. The issues at stake are not being as sharply presented as, for instance, in the recent British election. But this impression has to be qualified in at least two aspects. First, appearances can be deceptive in Sweden. The bland reasonableness of the Swedes and their penchant to move towards consensus rather than confrontation dupes foreigners accustomed to more passionate political strife. The recession has produced widespread understanding among politicians and electors alike that the next decade will be more exacting economically for Sweden than any earlier post-war period. It will also call for a close re-assessment of the functioning of the welfare state. Second, the two issues which dominated the 1976 election and probably contributed most to the Social Democrats' defeat have been evicted from the referendum. A national referendum on nuclear power will be held next March and the Social Democrats have postponed until their 1981 congress a decision on the proposal to form capital funds controlled by the trade unions and financed from company profits. The original plan would have opened the way for eventual majority control of company share capital by the unions. Exclusion of these two issues should favour the Social Democrats. By agreeing to the demand for a referendum and

NOTICE OF REDEMPTION

Fairchild Camera and Instrument International Finance N.V.

5 3/4% Convertible Subordinated Guaranteed Debentures Due 1991

Redemption Date: September 28, 1979 Conversion Right Expires: September 24, 1979

NOTICE IS HEREBY GIVEN to holders of the 5 3/4% Convertible Subordinated Guaranteed Debentures Due 1991 ("Debentures") of Fairchild Camera and Instrument International Finance N.V. ("the Company") that pursuant to the provisions of the Indenture dated as of December 1, 1976 (the "Indenture") among the Company, Fairchild Camera and Instrument Corporation, Guarantor ("Guarantor") and Morgan Guaranty Trust Company of New York, Trustee, the Company has elected to redeem all of the outstanding Debentures on September 28, 1979 (the "Redemption Date") at a redemption price of 104.5% of the principal amount thereof, together with accrued interest from December 1, 1978 to the Redemption Date. Payment of the redemption price and accrued interest, which will aggregate \$1,093,008 for each \$1,000 principal amount of Debentures, will be made on presentation and surrender of the Debentures together with all coupons appertaining thereto maturing after the Redemption Date at the offices of the Paying and Conversion Agents set forth below. The Debentures will no longer be outstanding after the date fixed for redemption. The redemption price will become due and payable upon each Debenture on the Redemption Date and interest thereon shall cease to accrue on and after the Redemption Date.

Holders of Debentures have as an alternative to redemption, the right to sell their Debentures through usual brokerage facilities or on or before the close of business on September 24, 1979 to convert such Debentures into the Common Stock of the Guarantor.

The Debentures may be converted into Common Stock of the Guarantor at the rate of 21.98 shares for each \$1,000 principal amount of Debentures. In order to affect this conversion, a Debenture holder should complete and sign the CONVERSION NOTICE on the Debenture or surrender to the Paying and Conversion Agents a similar signed notice together with the Debentures to be converted. A holder who surrenders Debentures for conversion will receive a certificate for the full number of whole shares to which he is entitled. No fractional shares of Common Stock will be issued upon conversion of any Debentures, but in lieu thereof the Company will pay in United States dollars an amount equal to the market value of such fractional share computed on the basis of a price of \$65 per share of the Guarantor's Common Stock. If more than one Debenture shall be delivered for conversion at one time by the same holder, the number of full shares which shall be issuable or deliverable upon conversion shall be computed on the basis of the aggregate principal amount of Debentures so delivered. The conversion will be deemed to have been effected immediately prior to the close of business on the date on which the Paying and Conversion Agents receive such Conversion Notice and the Debentures surrendered for conversion. Upon conversion of the Debentures no payment or adjustment will be made for interest accrued thereon from December 1, 1978. Debentures delivered for conversion must be accompanied by all interest coupons maturing on and after December 1, 1979.

On May 29, 1979 Schlumberger (California) Inc., an indirectly wholly owned subsidiary of Schlumberger Limited offered to purchase any and all shares of the Guarantor's Common Stock for \$66. As a result of this offer, Schlumberger (California) Inc. acquired more than 90% of the outstanding shares of the Guarantor's Common Stock. In connection with the offer but prior to the commencement thereof Schlumberger Limited and the Guarantor entered into an agreement providing for a merger between the Guarantor and Schlumberger (California) Inc. pursuant to which each share of the Guarantor's Common Stock not owned at the effective date thereof by Schlumberger (California) Inc. would be converted into a right to receive \$66 in cash. Schlumberger (California) Inc. has informed both the Company and Guarantor that it intends to proceed with the cash merger with the Guarantor on September 28, 1979 or as soon thereafter as is practicable. In such a cash merger each outstanding share of the Guarantor's Common Stock would be converted into the right to receive \$66 cash per share. As such a price, the holder of a \$1,000 principal amount of Debentures would receive upon conversion shares of the Guarantor's Common Stock and cash for the fractional interest having an aggregate value of \$1,450.68. Based on the price to be paid in the pending cash merger, holders of Debentures upon conversion will receive Common Stock and cash in lieu of any fractional shares having a greater value than the cash which they would receive upon redemption.

Delivery of Debentures to the Paying and Conversion Agents after the close of business on September 24, 1979, regardless of the instructions and any notice, will result in the redemption of such Debentures at the redemption price of 104.5% of their principal amount together with accrued interest to September 28, 1979.

IMPORTANT FACTS ABOUT REDEMPTION

As described above, based on the price to be paid in the pending cash merger, the value of the Guarantor's stock into which the Debentures are convertible is significantly greater than the amount of cash which would be received upon surrendering the Debentures for redemption. All rights to convert the Debentures into the Guarantor's Common Stock expire at the close of business on September 24, 1979.

PAYING AND CONVERSION AGENTS

- Morgan Guaranty Trust Company of New York Corporate Trust Office 30 West Broadway New York, New York 10015
Morgan Guaranty Trust Company of New York 33 Lombard Street London EC3P 3BH, England
Kreditbank S.A. Luxembourg 37, Rue Notre-Dame Case Postale 1108 Luxembourg
Dresdner Bank Aktiengesellschaft Gallusstrasse 7-9 D-4000 Frankfurt am Main 1 Germany

FAIRCHILD CAMERA AND INSTRUMENT INTERNATIONAL FINANCE N.V.

Dated: August 24, 1979

Another Italian fugitive arrested

BY PAUL BETTS IN ROME

ONE OF two fugitive Italian neo-fascists sentenced to life imprisonment for the 1969 Milan bomb outrage, was being flown home yesterday after his arrest in Costa Rica. Sig. Franco Freda's arrest comes barely a week after that of the other neo-fascist, Sig. Giovanni Ventura, in Argentina. This represents another major coup for the Italian security forces and a further boost for the new government of Sig. Francesco Cossiga. It also comes at the same time as the arrest in Paris of Sig. Franco Piperno, a leader of the so-called left-wing "workers autonomy" movement. He is suspected of having links with the Red Brigades extremists who last year kidnaped and murdered Sig. Aldo Moro, the late Christian Democrat leader. The Italian authorities are facing considerable difficulties over their extradition demands for both Sig. Ventura and Sig. Piperno. France has no arrangement with Italy for the extradition of people facing charges of a political nature. The matter is further complicated by a controversy between the two countries over the extradition from Italy of six Frenchmen facing death sentences. In the case of Sig. Ventura, his extradition could prove a protracted affair as the Argentine judicial authorities seemingly intend to try him first in Buenos Aires on charges of carrying false papers. Sig. Piperno, a leader of the so-called left-wing "workers autonomy" movement, was being flown home yesterday after his arrest in Costa Rica. Sig. Franco Freda's arrest comes barely a week after that of the other neo-fascist, Sig. Giovanni Ventura, in Argentina. This represents another major coup for the Italian security forces and a further boost for the new government of Sig. Francesco Cossiga. It also comes at the same time as the arrest in Paris of Sig. Franco Piperno, a leader of the so-called left-wing "workers autonomy" movement. He is suspected of having links with the Red Brigades extremists who last year kidnaped and murdered Sig. Aldo Moro, the late Christian Democrat leader. The Italian authorities are facing considerable difficulties over their extradition demands for both Sig. Ventura and Sig. Piperno. France has no arrangement with Italy for the extradition of people facing charges of a political nature. The matter



Mr. Thorbjorn Fallin is repairing his damaged image.

the other parties now accepting his demand for a nuclear referendum and with his physical strength restored after 10 months out of office, he has the chance to repair at least some of the damage to his credibility as leader of the anti-Socialist cause. One problem is that he now has a rival, Mr. Ola Ullsten, the young, poker-faced Liberal leader, who has been Prime Minister for over 10 months in the minority Liberal cabinet. During that period the Liberals' poll rating has advanced from the 11 per cent they achieved in the 1976 election to 15-16 per cent, as the Centre party's advance over its non-Socialist partners has shrunk. Moreover, since he took over the premiership, the combined non-Socialist poll rating has

again edged ahead of the support for the Social Democrats and Communists after falling well behind during Mr. Fallin's tenure. Mr. Ullsten has been careful to refrain from accepting Mr. Fallin as the natural choice to lead a new non-Socialist coalition. Thus, the non-Socialists are not presenting as united a front as in 1976 when the slogan "It's time for a change" won them a majority. There has also been a perceptible move towards the centre within Swedish politics, which muddies the issues. The Social Democrats have shown readiness to modify the radical proposal for trade union shareholding funds. The Centre party and Liberals have accepted in principle the need for some form of capital funds and feel for tactical reasons the necessity to distinguish themselves more sharply from the Moderates, who offer the most extreme alternative to Socialism. While Mr. Costa Bohman, the Moderate leader, proclaims that "Sweden has passed the point at which social problems can be solved through higher taxes," the Centre party and Liberals warn that the budget deficit prohibits any reduction in the overall tax burden. Social reforms cannot be jeopardised by conservative policies, they argue. With nuclear power and trade union shareholding funds set aside and with the tax options confused, Swedish electors are being asked to take a "gut decision" about the Socialist and anti-Socialist alternatives without being sure what the choice entails. The anti-Socialist potential was shown in the May and June opinion polls which gave the three non-Socialist parties together a 1 to 2 per cent lead. But it is not certain that their advance will stand up to the final drive of a well-organised labour movement. It is difficult to judge how much electoral capital the non-Socialists have in their three-year government record. Against their split over nuclear power, they can claim to have proved that Sweden can be run by others than Social Democrats and they managed to turn the economy into recovery. But they used nationalisation to support parts of Swedish industry and they solved the employ-

Southern Kinta Consolidated (M) Berhad

(Incorporated in Malaysia) Chairman, Y. B. Encik Abdul Ghafar Baba For the year ended 31st March 1979

Extracts from the Statement by the Chairman

Past year's performance

All the three dredges in Malaysia achieved satisfactory production but output from the dredge at Takuapa Section, Thailand, was below expectation due to the effects of widespread illegal mining activities in the area. A combined total of 28,151 piculs was recovered by all the dredges which was only slightly less than the previous year.

Gross proceeds from sale of tin concentrate was higher due to the higher tin price which averaged during the year. Profit before taxation of \$16,703,439 was 25.5% higher than the previous year. Taxation absorbed \$8,782,410 leaving a balance of \$8,921,029 available for distribution.

Dividend An interim dividend of 90 sen per share less tax was paid to shareholders on 29th January 1979 and subject to shareholders' approval at the annual general meeting, a final dividend of 90 sen per share less tax will be paid on 20th September 1979.

Developments during the year Permas Charter Management Sdn Berhad were appointed share registrars of the company in place of Sime Darby Malaysia Berhad, with effect from 1st August 1978.

Mining and General Management Co. Limited (MGM), a company incorporated in Thailand, were appointed the company's managers in Thailand with effect from 1st February 1979 and on the same date Permas Charter Management Sdn Berhad were appointed technical consultants and advisors to MGM to assist MGM in their role as managers of the company.

In January 1979 an agreement was concluded between the Offshore Mining Organisation (OMO) and the company whereby the company contracted to work mining leases held by OMO at Thai Muang in the province of Pangang. Results from this area during the period February-April were disappointing, again because of the effects of illegal mining. To fulfil the contract the dredge will return to Thai Muang later in 1979.

Projections for current year At Bertram Section No. 1 dredge will shut-down for 10 days and No. 2 dredge for 20 days during the second quarter to carry out planned repairs. According to the present mining scheme No. 2 dredge is expected to cross the Sungai Bertram in the latter part of the year and that the station and river crossing exercise would take approximately two weeks.

Barring unforeseen circumstances, production by the three dredges at Bertram and Southern Kimpur section should improve because these units are expected to work in higher grade ground. Although last year's results from operations in Thailand were generally satisfactory, working conditions are becoming increasingly more difficult because of the activities of the illegal miners. The well-located areas of Takuapa are particularly badly affected and in certain weather it is not unusual to see several hundred boats, many of them large, modern and well equipped, working the company's ground. Because of these activities the thin deposits suitable for the present suction dredge operation are rapidly being depleted and it is not possible to predict future results from the suction dredge with any degree of accuracy. It seems unlikely that the dredge, in its present form, can continue profitable operation at Takuapa for very much longer. A proposal to modify the dredge to enable it to efficiently mine the thicker alluvium and recover the deeper ore reserves is being investigated.

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Copies of the Report and Accounts and Chairman's Statement can be obtained from the Registrars Permas Charter Management Sdn Berhad, P.O. Box 286, Kuala Lumpur, or OYO Malaya Sdn Berhad, Registrars Limited, Charter House, 15, Upper Macao Street, Kuala Lumpur, or 40, Robinson Road, Singapore.

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OVERSEAS NEWS

Rebels kill Iran army commander

TEHRAN — Kurdish rebels killed an army division commander and 21 troops in heavy fighting near the town of Saqez in north-western Iran yesterday, the official Pars news agency reported.

Ecevit despatches Minister to probe Kurdish unrest

MR. BULENT ECEVIT, the Turkish Prime Minister, yesterday sent his Interior Minister to eastern Turkey to investigate reports of unrest among the Kurdish minority there.

claims that there are Kurdish underground forces in eastern Turkey "whose aim clearly is to break up the territory of the republic of Turkey and create a Communist state in the east."

policeman was recently murdered. He was reported by the Turkish Press as saying that hundreds of people, including women and children were jailed and tortured in Kizilirmak after this incident.

Glimmer of hope on Namibia

TWELVE DAYS of talks aimed at reviving the Western initiative for an international settlement in Namibia (South West Africa) ended in Pretoria yesterday with a glimmer of hope for a solution.

night to report back to his colleagues in New York, declaring that he was hopeful that progress would be made.

sonnel monitor SWAPO's existing external bases in Angola and Zambia.

Rhodie to appear in court today

DR. ESCHER RHOODIE, the former South African propaganda chief accused of embezzling government funds, is expected to appear in court today.

Janata presses on impeachment

THE JANATA PARTY is seeking a special session of the Rajya Sabha, the upper House of Parliament, to move an impeachment motion against Mr. Sanjiva Reddy, the Indian President.

motion needs a two-thirds majority to pass.

Opposition in the dissolved House, the President was part of a "conspiracy" to prevent him from becoming Prime Minister.

Algerian envoy

Algeria has named an ambassador to Bern, ending a five-year diplomatic freeze, Brig. Khindaria writes from Geneva.

PLO in Kenya

The Palestine Liberation Organisation is to open an office in Nairobi after recent negotiations between the organisation and the Kenya Government, reports John Worrall from Nairobi.

NEW OPPOSITION LEADER DEMANDS CONSTITUTIONAL CHANGES

S. Korea holds tight rein on dissent

IN THE early hours of August 11, hundreds of police in full riot gear stormed the headquarters of South Korea's Opposition New Democratic Party to break up a protest meeting by 178 women textile workers.

vote than the Democratic Republican Party at national elections for the Assembly. The President is elected separately.

liberal democracy is inappropriate for South Korea with its Confucian social tradition, plus the threat of attack by Communist North Korea should it ever sense a lack of resolve in the South.

still technically deprived of his political rights by court order, Kim Dae-Jung is seen to be an influential force behind Kim Young-Sam and the National Democratic Party leadership.



President Park (centre) is facing a growing challenge from opposition leader Kim Young-Sam (left) and former presidential candidate Kim Dae-Jung (right).

for the past 10 years. He became the youngest ever member of the Korean National Assembly at 25, and, in 1974, the youngest leader of the National Democratic Party.

During the 1960s, Kim Dae-Jung was Kim Young-Sam's party rival and in 1971 defeated him to gain the National Democratic Party's nomination as candidate for the Assembly.

He was charged and tried for alleged violations of election laws in 1967 and during his unsuccessful presidential bid in 1971. He was found guilty and sentenced in December, 1975, to one year's imprisonment, but remained free pending the hearing of an appeal.

AMERICAN NEWS

Moderation the new keynote in Bolivia

By A Special Correspondent, recently in La Paz A GOVERNMENT of moderation and equilibrium in a country of extremes is the goal of Dr. Walter Guevara Arze, the new Bolivian President.

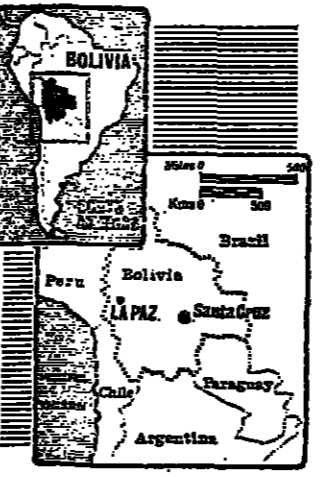
Split between blacks and Jews on Mideast widens

BY DAVID BUCHAN IN WASHINGTON

THE SPLIT between American blacks and Jews over the future course of U.S. Middle East policy — precipitated by the resignation of Mr. Andrew Young from President Carter's Administration — has widened.

The Israeli warning brought a sharp reaction from the black leaders, who issued a statement which said in part: "The involvement of blacks and their concern in foreign policy questions is repeatedly questioned."

As American Jews have moved up the social ladder, they have in general lost interest in those mechanisms, such as quotas in certain professions, which blacks have used to try to reverse the effects of past discrimination.



Dr. Guevara Arze, founder of the popular-based Movimiento Nacionalista Revolucionario (MNR) party, said in an interview that his interim administration will be centrist in orientation, reflecting the social problems now confronting Bolivia.

Schlesinger urges new pipeline

BY STEWART FLEMING IN NEW YORK

DR. JAMES SCHLESINGER, outgoing U.S. Energy Secretary has backed proposals to build a new oil pipeline from the State of Washington east across the northern U.S.



Dr. James Schlesinger

The U.S. Energy Department has proposed that three large New York power plants should convert from oil to coal, a move which could save between \$m and 1.4m barrels of oil a year.

It has long been apparent that the U.S. needs more west to east pipelines to improve the distribution of Alaskan oil in the U.S.

Dr. Cecil Andrus, U.S. Interior Secretary, is responsible for recommending a choice among the various projects.

Conversion costs have been estimated by Consolidated Edison, which owns the plants, at more than \$150m. Costs could be considerably higher if the utility were required to install equipment to remove sulphur from the fumes.

UAW leads oil protest

BY OUR WASHINGTON CORRESPONDENT

NEARLY 1m members of the United Auto Workers Union have written to President Carter and their Congressmen and Senators protesting the joint failure of the U.S. Administration and the legislature to come up with a coherent energy policy.

paid due to culminate in a "Big Oil" protest day on October 17.

Volcker backs slower money supply growth

By Our New York Correspondent

MR. PAUL VOLCKER, Federal Reserve Board chairman, favours a declining rate of growth in the U.S. money supply "over a time" as a means of attacking high inflation in the economy, he said in Washington yesterday.

Stevens loses union fight

BY JOHN WYLES IN NEW YORK

J. P. STEVENS, the second largest U.S. textile company, has again been penalised for alleged anti-union activities and has been ordered to recognise the Amalgamated Clothing and Textile Workers' Union at some plants where workers originally voted against recognition.

a majority of the workers had signed "authorisation cards" as more representatives of their preferences. These cards are used as an initial gauge of worker interest in union membership and a majority of signatures is usually considered as good grounds for holding full-scale recognition election.

Call for action on refugees

WASHINGTON — A special congressional study yesterday urged greater action by the United Nations to deal with the world's growing refugee problem.

Putting the global refugee total at nearly 13m—the highest since World War II—and forecasting a marked rise over the next few years, the report by the Congressional Research Service calls overall refugee assistance round the world "haphazard, inconsistent and badly co-ordinated."

"destabilising" problem in non-Communist South-East Asia creating a problem like that of the Palestinians in the Middle East, it adds.

present UN agreements needed further study, the report went on. The effect was that states facing an influx of refugees had wide latitude to accept or reject them.

Advertisement for GENERATORS, featuring a list of specifications and contact information for Clarke Group.

# Trade between East and West Germany declines

BY LESLIE COLITY IN BERLIN

TRADE BETWEEN East and West Germany, which Bonn regards as intra-German commerce, took an unusual fall of 1.5 per cent in value in the first half of this year, dropping DM 62.8m to DM 4.2bn. West German deliveries to East Germany fell 7.2 per cent to DM 2.1bn while shipments to West Germany increased by 4.8 per cent.

The overall slump was mainly due to a drop in orders from East Germany for West German plant and equipment following the major contracts signed in 1975.

In recent years, several other Western countries and Japan have concluded turnkey contracts with East Germany, such as the DM 720m deal last year for Citroen to build a front-wheel drive transmission plant in East Germany.

West Germany's Ministry of Economics said West German deliveries to East Germany were also affected by the lower rate of East German economic growth which was partly a re-

sult of severe winter weather. If the East German economy picks up in the second half of the year, it is hoped that intra-German trade will improve.

East Germany achieved a rare DM 72m surplus in its trade with West Germany in the first half-year and thus reduced its cumulative trade deficit with West Germany to DM 3.57bn.

The fall in West German deliveries to East Germany was almost wholly in mechanical and electrical engineering products which dropped by DM 312.4m or 49.5 per cent, to DM 318.9m. Two-thirds of this was accounted for by the decline in major plant and equipment deals.

The West German Economics Ministry, however, says that several medium-sized contracts for plant and equipment, signed in 1978 and this year, are expected to lead to some improvement in West German shipments later this year.

West German chemicals, mainly anorganic, regained their leading position among

shipments to East Germany after taking second place for several years. They were up 13.2 per cent to DM 399.6m.

West Germany also registered a sharp DM 102m rise in coal sales to East Germany to DM 166m as a result of the freezing over of East German coalmine in January and sudden cuts in deliveries of hard coal from Poland.

An above-average 83.4 per cent increase in deliveries of iron (ferrous) metal to East Germany to DM 89.5m is said to have largely resulted from price increases and not from larger volumes.

Similarly, the increase in East Germany's total deliveries to West Germany by DM 98m is accounted for by the 40.3 per cent rise in the value of oil products shipped to West Germany.

They rose to DM 398.8m and largely reflected the increased price of East German petrol and diesel oil, refined from Soviet crude and delivered to West Berlin.

# Franco-German TV tubes link

By David White in Paris

THOMSON-BRANDT and AEG-Telefunken, the French and West German electrical groups, have agreed to pool their interests in the field of colour television tubes.

Their joint activities in the sector, which are to be brought into one company by the end of this year, are expected to have a turnover of FF 1.5bn (\$157m) in 1980.

The agreement, which forms part of efforts to restructure the European electrical industry in the face of outside competition, especially from Japan, follows closely on the announcement of co-operation talks between the Dutch Philips group and West Germany's Grundig.

Thomson-Brandt's current colour tube activities are tied up in a joint venture with RCA of the U.S., called Videocolor. This company, which has one factory in France and another in Italy, produces 1.4m tubes a year. Imports from RCA, which holds 49 per cent of the capital, bring its annual sales up to about 2m.

The agreement with AEG-Telefunken will bring the latter's tube production facilities at Ulm, where up to now tubes have been made under a Philips licence, into the Videocolor set-up.

The agreement is subject to approval by both the West German and French Governments.

# TOKYO ENERGY POLICY

# Japan increases oil imports

BY CHARLES SMITH IN TOKYO

JAPAN'S OIL supply situation has improved markedly in the past six to eight weeks, but possibly not quite to the extent being implied by the Ministry of International Trade and Industry.

MITI announced that imports of crude oil in July had reached 24,198m kilolitres.

The rise, reflecting a 40 per cent increase in Indonesian shipments and some increase in supplies from Saudi Arabia, brings Japan's oil imports for the first four months of the current fiscal year (starting last April) to 89,67m kilolitres, or 9.1 per cent more than a year ago.

MITI's import plan provided for a 9.8 per cent increase in imports, so that actual performance is not running far behind schedule.

MITI goes on to point out that imports in August and September will have to do no more than equal last year's levels in order to fulfil the plan for the whole six-month period. This sets imports at 132,24m kilolitres compared with last year's April-September imports of 125.6m kilolitres.

The reason why fulfilment of the MITI import plan does not necessarily put Japan out of trouble is that the plan does no more than aim to supply the first four months of the current fiscal year (starting last April) to 89,67m kilolitres, or 9.1 per cent more than a year ago.

Hitting the import targets for the six months up to September 30 will not enable the Government to carry out an

earlier plan for building up stocks before the winter. MITI originally planned imports of 137,85m kilolitres for the six-month period — a level which would have enabled the Government to carry out its stock building programme.

Japan now has an estimated 83 to 84 days of oil stocks compared with 82 days at the end of March. Stocks could well fall after October when world demand for oil rises sharply from the August trough. MITI is declining to make any statement about how it sees the oil supply situation from October onwards.

Japanese Government statements on oil, have been deliberately low key ever since anxieties about supplies developed in March.

# U.S. attack on Indian investment policies

By K. K. Sharma in New Delhi

INVESTORS IN the United States consider the climate for investment in India to be basically unfavourable, according to Mr. G. V. L. Narasimhan, of the U.S. Department of Commerce.

Mr. Narasimhan said that the attitude of U.S. investors was hindered by the policies of the Indian Government, which he said, preferred outright purchase of technology to direct foreign investment.

He added that although the U.S. Government was ready to facilitate the flow of investment, the American business community would remain largely unresponsive unless India took steps to liberalise its foreign investment policies and to improve its image among foreign investors.

America was second only to Britain in investment in India and accounted for roughly 25 per cent of the direct foreign investment with a net book value of \$28bn (\$477m) at the end of 1977. This was less than 5 per cent of the total for Asia, excluding Japan.

Equity and inter-company account flows from American parent companies to their subsidiaries in India actually increased during 1978 as American investors withdrew capital from India, he said.

# Malta confirms import changes

By Godfrey Grima in Valetta

THE MALTESE Government is going ahead with its plans to take over the importation of an additional range of essential commodities, mostly foodstuffs.

Goods which will now be imported exclusively by the Ministry of Trade include rice, sugar, tinned meat, tinned fish, cheese, coffee and timber. The Ministry already handles the purchase of tinned milk, butter, meat, livestock for slaughter, wheat, barley, corn, potatoes, soya bean oil, cement and steel.

The two primary objectives given for the move are to ensure continuous supplies of essential commodities and to obtain goods at the most advantageous prices rather than to curb imports.

Committees comprising former importers, technical advisers, consumer and government representatives will now work with the Ministry's bulk buying division. Their main task will be to identify needs and try to maintain supplies and price stability. Former importers will stock and distribute the goods, sharing the profits between them. The new system will eliminate wholesalers.

# Poland reduces hard currency deficit by 20%

BY CHRISTOPHER BOBINSKI IN WARSAW

POLAND'S FOREIGN trade position improved in the first half of this year. The hard currency deficit at \$360.2m (£162.3m) represents a 21 per cent drop on the hard currency deficit run up in the first half of 1978.

The planned hard currency trade deficit for this year is \$600m, according to figures released to Western Banks in January. The same figures forecast an overall current account deficit of \$1.4bn, while repayment and servicing of Poland's \$15bn foreign debt would cost \$4.1bn this year.

On its overall trade Poland achieved a surplus of Zloty 681.3m (\$229.2m) in the first half of this year compared with a deficit of Zloty 693.9m in the same period last year.

The Central Statistical Office reports that Polish exports to non-Communist countries rose by 2.7 per cent in the first half of this year to Foreign Exchange Zloty 9.2bn (\$3,02bn) while imports dropped by 0.5 per cent to Zloty 10.3bn (\$3,35bn).

Transport bottlenecks, which were particularly severe during the hard weather in January and February, are still holding

up exports of major hard currency earners such as coal and copper which were down 11 per cent and 8.3 per cent respectively on the first half of last year. Import cutbacks of machinery and equipment, in line with the general slowdown in capital investment throughout the economy, show up clearly with the value of imported plant down 23.5 per cent compared with the same period of 1978.

Oil imports at 8.0m tonnes are at the same level as in the same period of 1978. The Soviet Union's problems with deliveries of gas from Iran do not seem to have affected deliveries to Poland. Imports of Soviet natural gas are on target with a growth of 59 per cent to 1,890 cubic metres in the first six months of this year.

Delays at Poland's congested sea ports show up in the transport figures published for the January to May period. A total of 24.6m tonnes of goods were handled by the ports in these months.

# Technip contract

By Our Paris Correspondent

THE FRENCH Technip construction group Technip has won contracts for two oil platform projects off Abu Dhabi. Investments in the two projects are together put at about FF 450m or nearly \$50m.

A subsidiary of Technip, Technip Geoproduction, is to carry out the construction of facilities for Abu Dhabi's Zakum field. These involve an accommodation platform for 180 people, an oil treatment platform with water injection equipment and an electricity generating plant.

Under the contract, signed with Abu Dhabi Marine Operating Company, it will also be responsible for building accommodation facilities for 120 people working at the Umm Shaif oil field.

# China to clarify investment law

BY JOHN HOFFMANN IN PEKING

CHINA IS about to clarify the provisions of an investment law on joint ventures by Chinese and foreign companies, formulated in June as part of the nation's revised economic development plan.

The legislation, intended to stimulate foreign investment in Chinese industry, as so far failed to attract overseas partners. Foreign concerns have been cautious because of ambiguities and loopholes in the legislation.

Mr. Gu Mu, a Chinese Vice-Premier, announced in Peking that supplementary regulations

and protection of foreign investment would be issued soon.

He was speaking with a visiting party of Japanese industrialists. The joint venture law is a significant departure from China's traditional resistance to foreign ownership of enterprises in China.

It is seen as a frank acknowledgement that foreign capital and technology is essential to China's development programme.

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# More orders for Boeing

By Ray Dafter, Energy Editor

SEATTLE BOEING has won orders from Air Canada for a total of nine aircraft, consisting of six 727 jets and three 737 jets. Boeing did not disclose the value of the orders. However, industry estimates place the cost at \$125m.

Boeing said Air Canada purchased six 727s for delivery in January, 1981, and one each in February, March, April and May. The aircraft will use Pratt and Whitney JT8D-15 engines. Boeing said Southwest Air Lines ordered another 737 for delivery in December, 1980. The aircraft will be powered by Pratt and Whitney JT8D-17 engines.

Gulf Air is to buy two Lockheed TriStar Series 200 jets, the Gulf News Agency said from Doha, Qatar, with delivery in February and March, 1981. Agencies

# Mondale in talks with Peking

BY DAVID BUCHAN IN WASHINGTON

MR. WALTER MONDALE, U.S. Vice-President, is due to leave for Peking today for a week of talks with Chinese leaders that will span not only pressing political problems, such as refugees from Vietnam, but also uninvolved economic and trade issues between Washington and Peking.

Mr. Mondale's visit will be the first high-level occasion for the U.S. Administration to explain why it has not yet sent to Congress the U.S.-China framework trade agreement, signed in Peking nearly two months ago, for approval.

This provides for the opening of trade offices in both countries, trade promotion, broad rules on marketing and, most important for Peking, "most favoured nation or preferential tariff" status for Chinese goods entering the U.S.

The Administration has said the pressure of Congressional business on issues such as the Salt Arms Treaty and the energy policy has delayed the sending of the agreement to Capitol Hill.

Mr. Mondale is expected to raise the thorny issue of a new textile agreement with Peking, \$3.2bn (\$12m) in the period

which earlier resisted U.S. demands for restraint leading to a unilateral imposition of quotas on Chinese textiles last May.

AN-DJ adds from Washington: The U.S. Commerce Department reported a 20 per cent drop in textile and apparel imports in the first half of 1979.

But the value of imports of textiles and apparel from Hong Kong, Japan, Taiwan, South Korea and other countries showed a 10 per cent increase in the January-June months of this year, and totalled about \$3.2bn (\$12m) in the period

# ENERGY REVIEW: BRITISH GAS

# The thorny problem of matching supply with a fluctuating demand

FOR ALL its success as a profit maker, the British Gas Corporation is a State undertaking under both public scrutiny and selective attack.

The Energy Department is looking at ways of altering the Corporation's pricing structure, perhaps to bring domestic gas tariffs more in line with those for other energy forms. The Gas Consumers' Council has criticised the Corporation's own plans for raising prices in the face of big profits. And this week the Chemical Industries Association (CIA) launched its own attack on British Gas's pricing policies and its order of priorities for supplies.

In essence, the CIA has called for lower prices—more akin to those charged by the European gas companies to their own chemical industry—and a fairer share of any additional supplies.

But underlying all this is a more fundamental problem confronting the gas industry, one that impinges directly on future supplies and prices. The Corporation is now working out ways of matching its future sales to a pattern of offshore gas supplies that is not only changing significantly but is also still somewhat uncertain.

Not that there seems much doubt within the Corporation that there will be enough natural gas to last into the next century. The Department of Energy estimates that some 52.2 trillion cubic feet of recoverable gas reserves remain in present discoveries; this figure covers the reserves in the southern sector of the North Sea, the gas in UK fields in the northern sector (including those fields which contain in the main crude oil) and the Gas Corporation's own natural gas discovery in the Irish Sea, the Morecambe Field.

The Energy Department estimates that ultimately as much as 80 trillion cubic feet could be recovered. Gas Corporation officials are reasonably confident that at least 70 trillion cubic feet will be extracted from reservoirs on the UK continental shelf.

Assuming British Gas is right, it seems that there are sufficient

# BRITISH GAS CORPORATION'S LOAD FACTOR BALANCING EXPECTATIONS, 1979-80 AND 1983-84

	Gas supply year ending 1979-80		1983-84	
	Average daily demand	Peak daily demand	Average daily demand	Peak daily demand
DEMAND FOR GAS				
Firm supply commitments	39.4	88.7	47.4	109.4
Interruptible supply contracts	9.0	—	9.5	—
Total	48.4	88.7	57.2	109.4
SUPPLY OF GAS				
Southern basin	34.8	57.8	31.8	52.9
Northern basin	17.7	27.7	26.2	33.2
Total	52.5	85.5	58.0	86.1
SS: "Take or pay" provisions in gas purchasing contracts	4.1	—	0.8	—
STORAGE NEEDED	nil	8.2*	nil	23.3

\* BGC's present gas storage capacity is in excess of 8.2m therms a day.

Source: Price Commission

often not possible to regulate the pace of offshore supplies to match exactly such changing demand patterns either for reasons of reservoir mechanics or because of plain economic considerations. What is more, it appears that the fresh supplies of gas from the northern sector of the North Sea offer less opportunity for flexibility than those from the south.

So far the Corporation has contracted to buy gas from operators of the six southern fields—Leman Bank, Indefatigable, Viking, West Sole, Hewitt and Rough—at a rate that will sustain an average load factor equivalent to about 60 per cent of the peak output. For instance, according to the Price Commission, during the year beginning September 30 these fields could yield an average of 3,480m cubic feet a day, as against a peak of 5,780m cubic feet a day. Furthermore, the operators have agreed a new "take or pay" deal whereby British Gas can take less than the specified annual quantity. The unused portion of the gas is still paid for, however,

competes with potential buyers in other parts of Europe.

The average load factor in fields which yield gas in association with crude oil will probably be even higher. The gas has to be produced at the same rate as the oil. This gives rise to a sad energy fact of life: last year oil operators flared gas into the atmosphere—and thus wasted—an average of 440m cubic feet a day. At the moment, with considerable flaring from the Brent Field, the wasted output is nearer 600m to 700m cubic feet a day, some 14 per cent of Britain's needs.

Without gas pipelines to shore, the Government's gas, faced with three alternatives: injecting the gas back into the reservoir for future use (not always possible), flaring the gas into the atmosphere, or stopping the production of both oil and gas.

In view of the overall energy picture, companies have been encouraged to build up oil production as their first priority, although considerable steps have been taken on re-injection. As Britain reaches the magic point of energy self-sufficiency (and it is almost there) the Government is likely to take a tougher stance over gas flaring. Hence, it is almost certain that oil fields with large amounts of associated gas will have to be linked to some form of gas gathering system. Mobil and British Gas Corporation are currently studying one such pipeline system for the northern part of the North Sea. This seems likely to go ahead in the 1980s—providing the Gas Corporation, with another important, if somewhat indefinable source of supplies.

In order to compensate for this apparent shortage, the supply flexibility the Corporation is taking a number of significant steps.

British Gas's wholly-owned Morecambe Field may well be developed in such a way that its gas supplies could be turned up and down in tune with seasonal demand. Morecambe contains estimated recoverable reserves of 23 trillion cubic feet, is to be developed at a cost of around \$450m. It is even more bricks being

stream, in its peculiar peak load role in 1983/84.

But it is unlikely that there are many Morecambe Fields around. It is close to shore, which reduces development costs. British Gas Corporation has no partners so there will be no income offsetting the heavy revenue reduction or cut-off during the summer months. And it appears that Morecambe is a reservoir which can be exploited on a cyclical basis.

Talks have already started with operators of the partially-depleted Hewitt and Rough Fields with a view to using these reservoirs as natural storage vessels. The idea is that during the summer months gas would be pumped into these two southern fields for recovery during periods of high demand.

British Gas Corporation's other storage facilities will be expanded at currently four liquefied natural gas storage centres—near Glasgow, near Manchester, the East Midlands and in the North Thames area. Other LNG facilities are planned for South Wales, Bristol and Canvey Island. In addition an underground salt cavity storage facility is being developed at Horwich in Yorkshire. The capacity of this salt cavity is expected to be about 2bn cubic feet of gas.

The urgent need for increased storage was identified by the Price Commission which, as the accompanying table shows, pointed out that by 1983/84 as much as 23.3m therms a day (22.3m cubic feet a day) of storage might be needed, three times the current need.

The Gas Corporation has said that it wants to build up its sales and maintain flexibility without increasing the scale of interruptible contracts with its customers; the safety valve used to curtail some industrial supplies during periods of heavy demand.

If all amounts to a complex package of measures not readily perceived by gas consumers. The penalty of failure would be all too apparent: shortages of supplies during cold winter months. And that would result in even more bricks being tossed at British Gas.

**The Sungei Besi Mines Malaysia Berhad**  
(Incorporated in Malaysia)

Extracts from the Statement by the Chairman,  
**Encik Junus Sudin**  
For the year ended 31st March 1979

**Performance during the year**

Your company had a very successful year and the production of 38,150 piculs was not only 20% above last year's but the highest in the past 5 years. Despite difficult operating conditions, results from Hong Fat were excellent and contrary to expectations reserves of this section were not completely exhausted.

The gross tin price also improved from the previous year's average of \$1,626 per picul to \$1,822 per picul. The net realised price per picul was \$962, an increase of over 15% from the 1978 price of \$881.

These factors contributed to a very satisfactory profit of \$37,731,000 before government export duty and taxation, surpassing that of the previous corresponding period by \$17,360,000. However, from this profit an amount of \$26,890,000 (or 71%) was absorbed by government export duty and taxation leaving \$10,841,000 for appropriation.

**Dividends**

In the light of the improved earnings of 318 sen per share (excluding extraordinary items) your directors have recommended the payment of a final dividend of 350 sen per share, less tax at 40%. This final dividend, subject to your approval at the annual general meeting to be held on 19th September 1979, will be paid on 20th September 1979.

Together with the interim dividend of 170 sen per share, less tax at 40% paid in January, 1979, the total for the year ended 31st March 1979 would be 520 sen per share, less tax at 40%, compared with 65 sen per share, less tax at 40%, paid last year.

**Projections for the current year**

In order to recover the economic ore reserves remaining below the level reached by the previous year's mining programme at 325 ft. the Hong Fat pit will be further deepened to the -360 ft. level (about 470 ft. below ground level) and this is expected to make a major contribution to production during the coming year. As I have pointed out before, risks increase with depth and it appears that the limit of practical mining in Hong Fat will be reached at about the end of the current year. There are real doubts even now about the stability of the limestone on the southern slopes of Hong Fat and this will be a critical factor in the execution of the mining programme.

No. 3/5 Opencast will also be a major producing unit and three smaller units, Barrier Road Block, Lode Plant Tailings and Hong Fat South will be opened during the year.

Total production in 1980 is expected to be lower than that for 1979.

**Outlook**

Looking farther ahead, projections suggest that there are sufficient reserves at current costs and favourable tin price to sustain production, although on a greatly reduced scale, until 1984. There is also the possibility that land not at present alienated for mining could be exploited. One such prospect is a strip of land covering approximately 90 acres which traverses the company's property and carries the Sungei Besi/Serdang Road and north-south railway line. The land is partly in the State of Selangor and partly in the Federal Territory. Initial studies indicate that it would be economic to mine the ground by deviating the road and railway line and with this in mind, discussions have been initiated with various authorities involved. 8th August 1978

Copies of the Report and Accounts and Chairman's Statement can be obtained from the Registrars, Pemas Charter Management Services Berhad, P.O. Box 336, Kuala Lumpur 01-02, Malaysia or the United Kingdom Registrars' office at Charter House, Park Street, Ashford, Kent TN24 8EQ, and 40 Holborn Viaduct, London, EC1P 1AJ.

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A test drive will prove to you or your chauffeur that it is the car capable of satisfying the driving instinct in the most demanding of motorists.

Beneath the bonnet is a powerful 2.5 litre engine which combines with a five speed gearbox to give impressive acceleration, leading to a top speed of over 120mph. While power assisted steering helps the Gamma Berlina handle like a car half its size.

The interior is extraordinarily roomy. Thick carpet is fitted door to door. And the seats, complete with adjustable headrests, are contoured,

thickly padded and covered in an elegant cloth fabric.

Naturally there are some impressive executive touches. Like electrically operated windows, a driver's seat that adjusts for both height and tilt, and an adjustable steering column.

Naturally too, there's the renowned Lancia front wheel drive for rocksteady handling and road-holding, and dual system brakes for exceptional stopping power.

You might think that such a well-engineered, well equipped car would, like some of its lesser rivals, carry a wickedly high price tag. On the contrary, the Gamma Berlina offers

you luxury you can afford. (You might tell your financial director, too, that the new 12,000 mile servicing intervals practically halve the servicing costs.)

You, or your chauffeur, can test drive the Gamma Berlina at your Lancia dealer. At the same time, ask him about our special leasing schemes. Or if you are eligible to purchase a Lancia free of taxes, contact our Export Department.

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Tel: 01-998 5355 (24 hour sales enquiry service).

*\*Price correct at time of going to press, it includes car tax, VAT at 15%, inertia reel seat belts, and delivery charges on UK mainland, but excludes number plates.*



The Lancia Gamma Berlina. £7,949.66\*



# BNOC's North Sea assets worth £1bn

BY RAY DAFTER, ENERGY EDITOR

SALE OF some of British National Oil Corporation's assets, expected within the next two months, will still leave the State oil undertaking in a strong position in the North Sea. This is implied in a new industry evaluation of BNOC's worth.

A study, undertaken by stockbrokers Wood, Mackenzie, values the corporation's interests in 13 North Sea oil fields at nearly £1.4bn. The brokers yesterday stressed that the valuation should be viewed as conservative as their calculations assumed crude oil prices remaining constant in real terms after 1980. It is understood that the valuation is also regarded as being too low within BNOC itself.

Nevertheless, the study indicates that even after the disposal of interests, ordered by the Government, BNOC could remain with an asset base of over £1bn. The corporation has been asked to prepare a list of North Sea holdings that it could sell to raise up to £400m.

The board of BNOC, under its chairman Lord Kearton, is due to finalise its recommendations at a meeting in Glasgow on Friday next week. It is understood that the corporation will resist the sale of its oil properties—particularly its more attractive ones like its Ninian and Thistle field interests—but may state its willingness to dispose of its share in the Viking gas field.

**Low sulphur**

Wood, Mackenzie values the corporation's 23.2 per cent stake in the Ninian Field at £516m; its 13.9 per cent interest in Thistle at £194m; and its 33.3 per cent holding in the British portion of the Murchison Field at £146m.

The other main interests are valued thus: Beatrice Field—£44m; Dunlin Field—£103m; UK portion of the Statfjord Field—£125m; and the Viking gas field in the southern sector of the North Sea—£80m. The corporation's stake in other

fields like the Brae and Hutton fields which are likely to prove commercial ventures is put at about £148m.

In addition, it is noted that the amount of oil available to BNOC through its state participation agreements with other North Sea producers is increasing rapidly. It is estimated that these should exceed 1m barrels a day by the early 1980s against an average of under 100,000 b/d in 1978.

This means that the amount of oil available to BNOC through its equity interests and participation rights in the early 1980s should represent about 10 per cent of the total eastern hemisphere production of low sulphur crude oil.

"At a time of world shortage, the control of such large quantities of crude could be a significant factor," the report states.

Mr. David Howell, the Energy Secretary, has already said that BNOC's access to such large volumes of North Sea crude is vital in the national interest.

# Talisman a month ahead of schedule

BY CHRISTINE MOIR

THE CHANGEOVER from manual transactions on the London Stock Exchange to Talisman, the new computerised settlement system, continues to go faster than expected.

By next Tuesday, 90 per cent of all bargains will be handled by Talisman, a full month ahead of schedule in spite of the system's late start in April.

The new level covers 4,188 securities in 1,815 companies, which are handled by 102 registrars. By the end of the year, the Stock Exchange expects to have brought into the system most of the business handled by the country's 750 registrars.

It also hopes by then to have the Irish-registered securities on Talisman. Agreement has been reached with the Irish Revenue over documentation, but it will take until December for the computer to be adapted to take into account the fact that the punt is now a foreign currency.

It will take longer to incorporate South African and other stocks registered on overseas exchanges as well as London. The Stock Exchange is still discussing with the Inland Revenue how stamp duty is to be apportioned for such stocks. The outcome might require legislation.

Meanwhile, Talisman is also running within budget. The new longer tariff which came into force on August 13 is likely to apply for the rest of the financial year. Until Talisman has been running at the 90 per cent level for some time, costs can only be transitional, explains Mr. John Watson, Talisman's director.



High Roundtable

THE RAF's anti-submarine capability was given a major boost yesterday when British Aerospace handed over the first Mark 3 Nimrod long-range maritime reconnaissance aircraft.

After a short ceremony in which Mr. Geoffrey Carr (centre), managing director of British Aerospace Manchester Division, handed the aircraft over to Air Chief

Marshall Sir David Evans (right), C in C Strike Command, Squadron Leader Peter Atkinson (left), flew the Nimrod to Kinloss in Scotland.

Fitted with a new radar, the aircraft is well equipped for submarine detection in the North Atlantic. It can meet anticipated advances in Soviet anti-ship warfare technology to the end of this

century.

The Nimrod is the maritime warfare version of the original Comet jet airliner. The five RAF Nimrod squadrons in the UK will have their 32 aircraft progressively updated to the Mark 2 level up to 1984.

The Nimrod's role also includes surveillance for search and rescue, fishery protection, and patrol

# Insurance proposals 'should be changed'

BY ERIC SHORT

A CALL for changes in insurance law which would abolish an individual's duty of disclosure when applying for insurance was made yesterday by the Scottish Consumer Council.

The recommendation comes in a paper published by the council commenting on proposed reforms in insurance law put forward by a working party of the Law Commission.

The council points out that, under present law, people seeking insurance must provide information about themselves and their circumstances that could have some bearing on the insurance, however remote.

The applicant, it claims, naturally assumes that if the insurance company does not ask a particular question, he is not obliged to provide additional information. Thus, under present law, the insurance company must decide what is relevant for the insured to disclose, which information need have no direct bearing on any claim.

However, insurance companies should be compelled by law to ask for the information they require and should be able to refuse to pay claims only when people deliberately conceal relevant information, the council says.

It calls on insurance companies to develop new insurance proposal forms and says that individuals and companies should be treated separately.

The council also calls for reforms in warranties of insurance, where, for instance, a person signs a form saying he is in "good health" being unaware that he has a disease.

The Consumers Association, in its comments on the Law Commission report, makes similar recommendations for changes in insurance law.

# New Town agents named soon

BY ANDREW TAYLOR

ESTATE AGENTS who will handle the £140m property sales programme by the English new towns are expected to be named shortly.

The New Towns Association, which represents the 21 English new town corporations, is understood to have approached about 15 agents. Interviews are taking place.

Between three and five agents

are expected to be chosen to handle one of the largest ever property sales in the public sector.

The programme, which must be completed by next March, has been ordered by Mr. Michael Heseltine, Environment Secretary, and accords with the Government's policy of selling publicly owned assets.

The Government has

appointed Healey and Baker, the agents, to provide general advice on new towns sales policy. That precludes Healey and Baker from handling any of the sales.

The agents have apparently been engaged also to help to formulate the Government's long-term approach to the new towns.

Property column, Page 7

# Engineering exports show 1% rise while home sales fall

BY HAZEL DUFFY, INDUSTRIAL CORRESPONDENT

THE EXPORT market for engineering products has shown more resilience over the last few months than the home market, according to official figures published in Trade and Industry today.

This trend may be surprising since much of the industry claims it is having difficulties because of the strength of the pound. But the trend in new export orders has increased only slowly since the beginning of

the year. Between February and May new export orders were only one per cent up on the previous period.

The home market has been unable to maintain the upward momentum that characterised the second half of 1978. New orders fell by 3.5 per cent between February and May against the earlier period, but the Department of Industry says it takes some time for the seasonally adjusted figure for

May. At 110 (1975 average monthly sales=100) the volume index of new home orders was at its highest since last December.

Sales of engineering products—electrical, mechanical and instrument—recovered strongly in the spring, after poor sales in January. The orders trend, however, still gives no clear indication of activity to be expected over the next few months.

# Motor trades turnover up 31%

BY LISA WOOD

TURNOVER of the motor trades in the second quarter of 1979 was 31 per cent higher than in the same period last year, according to Government figures published yesterday.

On the same comparison turnover on new vehicle sales increased by 47 per cent, according to the journal Trade and Industry.

Used vehicle sales increased by 22 per cent and sales of petrol and oil, tyres, spares and accessories and receipts from servicing and repairs rose by 20 per cent.

The increases come as no surprise with new car sales in the first six months of this year reaching record levels—1.03m compared with 888,955 between January and the end of June last year.

Sales of motor cycles fell back slightly in July after the June pre-Budget boom in registrations, but still exceeded sales in the same month last

year. July sales of motor cycles under 50cc reached 7,919 compared with 7,195 in the same month last year, according to provisional figures published by the Department of Transport yesterday.

Registrations were well up on the same month last year—14,194 compared with 10,988. The department said that in spite of the boom in sales in June, for both cars and small motor cycles demand was still strong in July, the recent increase in the price of petrol having revived keen interest in motor cycles.

# Historic building

THE EXHIBITION Historic Monuments in Britain opens next Thursday at Kensington Palace and continues till the end of the year. It portrays the work of the Department of Environment Ancient Monuments and Historic Buildings section in presenting the architectural heritage.

Monuments and buildings from prehistoric times onward are displayed in 50 panels of photographs and text. "Before and after" pictures show blending and repair work with original materials in conservation.

# Capital expenditure rises

THE VOLUME of capital expenditure in both the manufacturing and the distributive and service industries rose by 6.3 per cent in the April to June period compared with the previous three months, according to provisional estimates on 1975 prices published by the Department of Industry yesterday.

Most of the increase was in investment by the shipping industry has continued to

fluctuate sharply—up from £22m to £61m between the first and second quarters of this year at 1975 prices. In the first half of this year investment by this sector was nearly a third lower than a year earlier, although much the same as in the previous six months.

The level of stocks held by manufacturers, wholesalers and retailers rose by about £270m in the second quarter with the main rise in wholesalers' stocks.

# Stock Exchange Father dies

By Christine Moir

MR. ERNEST BOXALL of Stockbrokers Keith, Bayley, Rogers, has died aged 96. The cremation took place at Streatham Crematorium yesterday.

Mr. Boxall was elected to the Stock Exchange in 1908 and as the oldest member has borne the title of Father of the House for more than a year. The father, Colonel Vernon Laurie of Heselton Moss, is a mere strippling of 83 who joined the exchange in 1921.

Mr. Boxall founded the firm of Duffus and Boxall in 1919. Through a process of amalgamations his firm was incorporated in the present firm of Keith Bayley Rogers for whom he continued to act until the end of July.

After the death of his wife a year ago Mr. Boxall moved to a nursing home but continued to deal actively for a number of clients. Partners in the firm recall that he phoned the office every hour during trading times and handled a considerable amount of business right up to his death.

# Next three months crucial for airship company

THERMO-SKYSHIPS, the Isle of Man company which plans to build a new type of airship, has had several inquiries from private investors, although its share prospectus issue failed to attract the necessary capital.

The next three months would be crucial for the company to raise money allowing it to carry on, and directors were following various lines of inquiry, a spokesman said.

A company in Alberta, Canada, was interested in using

the airship to transport men and materials from its bases to remote oil exploration and extraction sites.

Financial support from European Airways had enabled Thermo-Skyships to carry on with design and test work.

The main work was being done on the prototype, capable of around 90 knots, carry 60 passengers — but the design team was also working on larger versions, which would have a greater range and payload.

However, the Battelle Institute in Frankfurt claims it has developed a cutting optical character recognition equipment as well as used in scanning bank cheques — to enable it easily to scan grocery prices at the checkout.

But UK supermarkets are sceptical of the claims made for the German system since the crucial factor with the laser-controlled checkouts is the savings it can achieve on stock levels.

# CAPITAL SPENDING AND STOCKS

Year	Fixed Capital Expenditure (£m 1975 prices, seasonally adjusted)		Increase in Stocks (£m 1975 prices, seasonally adjusted)	
	Total Manufacturing	Total	Manufacturing	Retailing
1973	8,777	3,440	2,235	1,170
1974	8,943	3,782	1,456	1,281
1975	7,938	3,522	-1,475	-1,120
1976	7,599	3,341	700	351
1977	8,418	3,637	970	509
1978	8,764	3,853	895	547
1977 1st	2,047	876	484	251
2nd	2,059	878	460	199
3rd	2,123	919	-8	4
4th	2,188	944	114	55
1978 1st	2,162	946	219	112
2nd	2,223	970	242	137
3rd	2,195	966	253	169
4th	2,185	971	181	129
1979 1st	2,175	952	229	55
2nd*	2,312	965	270	55

\* Provisional. Source: Department of Industry

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- GLoucestershire & DISTRICT**  
Lawson & Lawson, Chartered Valuation Surveyors & Estate Agents, 3 Regent Court, Cheltenham GL50 1HF. 0242 216773.
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Douglas L. January & Partners, 2/3 Fish Hill, Royston, Tel: (0783) 42921.
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THE PROPERTY MARKET BY MICHAEL CASSELL

New town sales selection

ESTATE AGENTS seeking a share of the action in the £140m package of new town property sales are now being interviewed by the New Towns Association.

It is understood that the association has asked about 15 agents if they would like to be considered to take part in one of the largest ever property disposal programmes in the public sector.

It is expected that between three and five agents will be eventually appointed to handle the sales for the 21 English new towns involved.

The corporation had already been asked to raise £40m through sales this year when earlier this month, Mr. Michael Heseltine, Environment Secretary, increased this target by a further £100m.

At the same time the corporations were given permission to offer longer leases—up to 125 years instead of the present 99 years. Mr. Heseltine also indicated a much more relaxed attitude towards freehold sales.

Under the New Towns Act, corporations cannot sell freeholds without the permission of the Secretary of State.

The department has already reached broad agreement with the new town authorities that the bulk of the sales—to be completed by March 1980—will come from eight towns. The final choice of what is sold and what is kept will, for the time being at least, rest with the 21 new town corporations.

The eight towns are Crawley, Hatfield, Hemel Hempstead, Welwyn Garden City, Bracknell, Harlow, Stevenage and Basildon.

Healey and Baker, which has been appointed special adviser to the Government on new town disposals, has begun its mammoth task of making a stock take of around 6,000 properties owned by the English new towns.

The company's exact role in the disposal programme remains unclear. The department stresses that it will not be directly involved in the sales and has been called in to provide general advice and to fill in gaps in the Secretary's knowledge of new town operations.

Mr. Paul Orchard-Lisle, the Healey and Baker partner appointed to head this operation says that the brief is very wide but time is short. A report is due on Mr. Heseltine's desk by September 14.

"After an initial stock take of all the new town assets we will try to identify those most likely for sale. We shall also prepare suggestions as to how disposals might be carried out."

One suggestion already being considered by Healey and Baker is the possibility of some kind of property bond or unit trust which would be available to the ordinary investor. It may be that new town residents would be given preference in any issue of bonds or unit trust.

Healey and Baker may also be examining ways of encouraging a greater level of private industry investment in future new town developments.

With the vast level of institutional money still seeking good property investment opportunities there should be no lack of support for the current round of disposals.

Crawley, which recently sought around £2m to finance an industrial development had six institutions bidding against each other. At Washington in the North East five institutions tendered when asked to provide £1m for another industrial development.

The strongest demand for new town properties is expected to come in the industrial and shop sectors.

Research still being carried out on the new towns shows that investment yields in these two sectors are generally in line with those in the rest of the country.

Prime industrial yields of nine of the 21 towns are at 6 per cent—the same as the national average—and prime yields rise no higher than 7 1/2 per cent in the remaining towns.

Prime shop yields in four of 13 towns so far studied are 4 per cent and none are higher than 6 per cent.

Mr. Orchard-Lisle sees no problem in the Government's target figure being met. "Compared with the £1.3bn the institutions spent on property last year—which is lower than what would have been spent if more good properties had been available—this is little more than a drop in the ocean."

Andrew Taylor

IN BRIEF

● McKay Securities has sold for about £11m a 71 per cent interest in its office and warehouse complex in Caversham Road, Reading. Purchasers were the Hampshire County Council Superannuation Fund, who were advised by Richard Ellis.

● The first phase of the Mount Pleasant, Bilston, West Midlands industrial development carried out jointly by Whittingham Industrial and the Barton Group has been sold to the Norwich Union for £1.7m. Shipway Doble and Earle advised Norwich Union in the purchase of the 105,000 sq ft investment, let to Beldray.

● Easy Garments (UK) has paid around £700,000 for a 20,000 sq ft single-storey warehouse and three-storey office block close to Staples Corner on the North Circular. The company was represented by Sinclair Goldsmith and King and Co. acted for vendors Hestair.

● Fluor (Great Britain) has completed its disposal programme of London properties in the wake of its move to Euston Square. White Druce and Brown has let nearly 10,000 sq ft at Blackfriars House, New Bridge Street, EC4, to the Docklands Development Organisation at a figure close to the asking rental of £11 per sq ft.

● Pension Fund Property Unit Trust has paid £1.45m for five shop units in Pinstone Street, Sheffield, with a total rental income of £70,500 a year. Horrox and Carr acted for PFPUT.

● Haslemere Estates has let two floors of newly modernised Crusader House in St. Stephen's Street, Bristol, at a figure close to the asking rent of \$3 a sq ft. Tenants so far are Vanbrugh Life, part of the Pru, and Boots. Joint agents are Fletcher King and Megran and Hartnell, Taylor, Cook.

● The Knight Frank and Rutley U.S. joint venture is to open another office, Douglas Elliman Knight Frank has one office in New York. President Earl Reiss says more offices are expected in California, Texas, Florida and Illinois.

● Caravans International is selling 5.95 acres of industrial land at Parkstone, Poole, Dorset to Standard Life Pension Funds for £580,000 cash on completion. The sale price exceeds the book value of the land and the buildings on it by £205,000 and the proceeds will go to reduce debt. Fox and Son acted for Caravans International.

● Confirmation of record rentals for Leeds came this week with news that AES Wordplex has paid about £5 a sq ft for space in Sun Alliance House, the recently completed 12-storey, 68,350 sq ft office block in the city centre. A similar rent has been achieved for space let to Anglo Leasing, a Rothschild subsidiary. Leases are for 25 years with five-year reviews. Only 25,000 sq ft now remains vacant and Weatherall Hollis and Gale is the sole letting agent.

Group's £15m surprise

"INHERENT CAUTION" is how Mr. Roger Wingate, managing director of Chesterfield Properties, explains the gap between his own board's recent £65m valuation of the company's property investment portfolio and the £80m open market figure subsequently arrived at by Healey & Baker.

The group's portfolio has a book value of just £29.08m and the surplus thrown up by Healey & Baker's latest exercise is being transferred to reserves.

Mr. Wingate says the valuation, together with the estimated surplus over book value attributable to Chesterfield's share of net assets of associate companies and including development sites at cost, indicates a net asset value of 368p a share. This compares with a book value of 97p and a figure of 288p reached by Sebago in its latest report on the group.

Sebag analyst Stephen Allen, who seems to have been as surprised at the outcome as Mr. Wingate, says he and his colleague Roger Baden Powell accepted the director's earlier assessment, added a little on for subsequent rental growth and imagined their 256p was "possibly a little conservative."

Healey & Baker is not the first agent in recent months to reach some fairly startling conclusions about trends in property values and the question of whether such confidence can continue to be justified in view of some very uncertain prospects for medium-term rental growth remains.

True, a period of substantial reversions is on the way, supporting current rock-bottom yields but the big question must be what influence the predicted recession will have on demand. Whatever the outcome, the more sensible level of present development activity should ensure a damaging glut of empty space is avoided this time round.

As for Chesterfield, caution remains the keynote. The company has embarked on substantial UK development—capital commitments are up from £500,000 to £11m—after a prolonged period of inactivity. The policy helped it to emerge largely unscathed from the slump. But it now feels development opportunities are more favourable than has been the case for some years.

A 31-acre factory and warehouse complex near Heathrow has just come onto the letting market and the group's 250,000 sq ft central shopping area in Rugby should be open early in 1980, with virtually the whole scheme now under offer.

Chesterfield is still awaiting the outcome of talks between the Department of the Environment and the City Council before work can begin on the proposed Hull shopping centre extension. Agreement has been reached with the Basildon Development Corporation for a 150,000 sq ft retail centre.

Chesterfield's efforts will remain concentrated on the UK. Having extricated itself from what, at one stage, were fairly extensive European operations, the group's interests are now confined to a 25 per cent interest (at one stage more than a half share) in the Tour Albert and Hotel des Mariniers developments in Paris.

But the question of further involvement in Europe has not been ruled out. According to Mr. Wingate: "We remain fairly flexible in terms of investment opportunities and have certainly not ruled out Europe as a matter of course."

"We have built up a great deal of experience and many contacts in Europe but anything we do there will need to be more attractive than the opportunities now presenting themselves at home."

Chesterfield's general condition is strong, with short-term loans of £3.8m in the last balance sheet largely offset by cash balances. Borrowings will rise as developments progress, but the company's low gearing leaves it in a sound position in this respect.

According to Stephen Allen "The group's policy of restraint on long-term borrowing will not be relaxed unless interest rates fall significantly, but long-term funding for most of the development programme has already been obtained from institutional sources. Only certain developments are being financed on medium-term loans at fluctuating rates of interest."

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# Lack of suitors for the Princess

BEHIND BL's decision last week to reduce production of the Princess lies the inescapable fact that sales of the car in its relaunched Mark II version have proved disappointing.

always down. It took 1.68 per cent of the market.

Austin Morris, which makes the Princess at its Cowley plant, argues that the energy crisis has prompted a shift to smaller cars across the whole industry.

the Princess, causing Austin Morris to reverse its decision on the cutback.

straints, are again confirmed in a report published yesterday of evidence given by BL leaders to a House of Commons select committee last year.

## NEWS ANALYSIS - HAZEL DUFFY LOOKS AT AN IMAGE PROBLEM AT BL

The Mark I model was launched in March 1975 as part of the 15/23 series, and renamed the Princess in September that year. The Mark II version came out in October last year.

for the Mini—20-years-old this week—has never been more buoyant.

workers to increase production for these two models, for which demand is forecast to go on increasing, or switching workers from the Princess, models of which are filling the showrooms.

Some dealers also suggest that it is tarred with the "Leyland" brush, and all that that means in terms of strife, insufficient funds, etc.

The design that went into the Princess 2, with its new "O" series engine, seems to have successfully overcome the faults that were all too common in the earlier version of the car.

## Food and drink companies gloomy

BRITAIN'S FOOD and drink manufacturers are not hopeful about profit margin recovery before the end of the year.

# Ford invests £50m in new range of best-selling Cortinas

FORD'S NEW models of its best-selling Cortina range, the result of a £50m investment programme, were launched yesterday.

gramme, parts of which were initiated before the car's 1976 re-launch.

the Fiesta and now fitted to the entire Cortina range. Ford has also responded to criticisms of the previous Cortina seats with a new design.

Cortina will also be produced at Genk, Belgium.

# BBC warning of service cuts

THE BBC could meet planned Government cuts of £4m in the 1980-81 World Service budget by dropping nearly all foreign language broadcasts to Europe, a corporation executive said yesterday.

London Broadcasting radio after meeting Foreign Office officials, who have to find where the cuts will be taken.

Office since Lord Carrington, the Foreign Secretary, told the House of Lords shortly before its summer recess that the BBC would be consulted fully before a decision was taken.

Information about new subscribers has also been held up so that the production of new directories has been delayed.

# Industry critical of clothes survey

BRITAIN'S TEXTILE industry yesterday strongly criticised the survey by the Consumers' Association, which claimed that large increases in clothing prices were likely as a result of import restrictions.

raw material prices, and the natural inclination of overseas producers to raise prices in the face of high demand for their products.

As well as any increases in import prices, importers' profit margins and cost increases in the UK play a very large part in rising clothing prices, the industry statement said.

Industry statement said. To attribute all price increases to the operation of the MFA is unrealistic and irresponsible," it says.

# Brick production figures out

FINANCIAL TIMES REPORTER BRICK PRODUCTION reached 391m last week, compared with 445m in June, the Environment Department said yesterday.

Stocks had fallen by the end of July to 645m from 726m in the month before, the Department said.

## Insulation guide

THE British Standards Institution's Kitemark symbol is to be used to identify loft insulating materials made to a new British Standard which meets the requirements of the Homes Insulation Act.

He accused the Consumers' Association of failing to give sufficient weight to other factors involved in the rise in import prices. These included wage increases, transport costs,

The industry claims that the survey takes no account of whether forecast price rises are justified by the effect of import restraints.

in the three months to the end of July, output was 3 per cent higher than in the previous quarter and up by a like amount on the same period a year earlier.

Production rose to 363,000 tonnes weekly against 357,000 tonnes in June, and stocks at the end of July stood at 393,000 tonnes, a fall of 21,000 tonnes from the previous month and 3,000 tonnes less than a year earlier.

# Phone bill backlog clearance next year

THE BACKLOG of telephone bills caused by a 19-week dispute between the Post Office and computer staff is unlikely to be cleared completely until early next year, it was disclosed yesterday.

# ITV companies agree to talks

BY OUR LABOUR STAFF

THE INDEPENDENT television companies agreed yesterday to a request from the Federation of Broadcasting Unions for a meeting today on the dispute which has backed out ITV programmes.

The managing directors of the companies met yesterday. There appeared absolutely no sign that they were prepared to consider even a marginal improvement on their pay offer of 16 per cent.

The Association of Cinematograph, Television and Allied Technicians, the National Association of Theatre, Television and Kine Employees and the Electrical and Plumbing Trades Union have sought increases of about 25 per cent.

A spokesman for the federation said: "The situation is now so serious that someone has to take the initiative to get the two sides together."

Members of the Civil and Public Servants' Association (CPSA) have accepted a pay offer which will give data processing staff rises worth an average 16 per cent.

But members of the supervisory union, the Society of Civil and Public Servants (SCPS) have yet to decide on their executive's recommendation that they should return to work.

# Staff ask for more as Shell profits rise

BY OUR LABOUR STAFF

WHITE-COLLAR staff at Shell refineries have submitted an interim pay claim eight months after their last settlement because of the company's profit performance.

ended with an 11 per cent settlement, the company told the union that it could not afford to pay more.

The union now took the view that the company deliberately deceived the workforce, because the latest profit figures showed an increase of almost 240 per cent on net income over the first six months of last year.

The union decision has been affected by an agreement at last week that the Royal Dutch-Shell Group boosted its profits to £1.3bn in the first half of this year.

# Pilkington improves wage offer to 16 1/2%

PILKINGTON GLASS, yesterday made an improved pay offer of 16 1/2 per cent to its workers following two-day national strikes which halted production.

The union has also been seeking. The union's industrial committee made up of shop stewards for the company's British plants, is due to meet next Wednesday to consider the offer.

Mr. Peter Horn, Liverpool official of the union and its secretary during pay negotiations, said: "The improvement would mean that the very minimum rate would be £7.84 for national offer for the glass industry, said Pilkington had also given commitments on new wage structures, as well as on shift payments, which the union has also been seeking."

# Staff strike against NALGO pay offer

STAFF of the National and Local Government Officers' Association start a series of one-day strikes today for a 10 per cent-plus-£15 pay claim.

own union members in the gas and water industries to reject offers of 13 per cent and 18 per cent respectively.

The workers, members of the Association of Professional Executive, Clerical and Computer Staff, want a minimum of £75 a week. The union said that NALGO had made an offer based on 14 per cent of its pay bill.

# Goldsmith hits out over union leadership

THERE IS an "abysmal lack of leadership" in the trade union movement, Mr. Walter Goldsmith, director-general of the Institute of Directors, claimed yesterday. He also accused the TUC of having a "short-sighted and reactionary attitude."

swell of violent opposition on the shop floor to any changes being made in trade union law. Mr. Goldsmith said it was all very well for the TUC to play to the gallery just before its annual conference, for the sake of maintaining a semblance of unity. "But the TUC so blinkered that it cannot recognise the public disgust at the excesses of last winter's industrial disputes."

# BL strike revolt grows

MORE BL workers joined the shop-floor revolt yesterday against the engineers' pay offer, as the union's 500,000 members voted to support the strike.

At the Pressed Steel Fisher body plant in Castle Bromwich, Birmingham, 600 night-shift men threatened at a meeting to ignore the next strike—a two-day stoppage planned for September 3 and 4.

## APPOINTMENTS

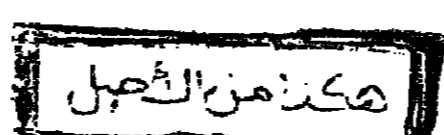
Mercantile & General managing director Mr. J. A. S. Neave has been appointed to be the first managing director of MERCANTILE AND GENERAL INSURANCE COMPANY from January 1, 1980. Mr. Neave became general manager in 1966 and has been on the Board since May 1977. He will be succeeded as general manager by Mr. P. J. Howell. The company is a subsidiary of Prudential Corporation with the ATOA as vice-chairman.

appointed by GRINDLAYS BANK to head its tax department. He has held senior tax positions in industry and was formerly an inspector of taxes.

Mr. Clive Beaumont has been appointed to head the employee communication consulting activities of WILLIAM M. MERCER, London. The company is a subsidiary of Marsh and McLennan.

Mr. Dennis Comper has been appointed chairman of C. A. Audio Systems, a subsidiary of Norton Warburg Investments. He is also a director of Saville Guest. Mr. Geoffrey Nore has become marketing manager of C. A. Audio Systems.

Mr. Dennis Tapper has been appointed a director of EDMUND NUTTALL LIMITED, a subsidiary of Edmund Nuttall Sons and Co. (Manchester).





مكثان الاصل

## Aero-Engines and Industrial Gas Turbines

The re-equipment programmes in the world airline industry are bringing a surge of new orders to the aero-engine builders and the high level of business is likely to persist for several years. On the industrial side demand is sluggish and competition intense.

THE WORLD market for gas-turbine engines has expanded rapidly in recent years. In all main areas of application—aero-engines, land-based, uses for power-generation, pipeline pumping and other duties, and as propulsion units for naval and commercial ships and Hovercraft. Today, there seems no limit to the further expansion of these markets, notwithstanding the problems arising from soaring fuel prices and the possibility of acute shortages of fossil-based fuels by the end of this century.

The reason for this expansion is that the gas-turbine engine, in all its forms, remains one of the most efficient sources of power available today, either in the air, on land or at sea. Modern technology is making it even more so. The latest generation of aero-engines now offer for the new airliners now in production, such as the Dash 535 version of the Rolls-Royce RB-211 engine for the Boeing 757 jet airliner, will burn up to 40 per cent less fuel per passenger than the Spey engines used in the Trident three-jetliners that the 757s will replace in the fleets of British Airways—one of the principal reasons for that airline's choice of that engine/airframe combination.

Before the fuel price crisis of the current year, the new generation of aero-engines promised to take the airline

industry substantially ahead of steadily rising costs. To some extent the fuel price increases of recent months have eroded the effects of that advance, but without the new generation of engines on which to rely, the world air transport industry would by the early 1980s have been in serious economic difficulties. Even allowing for the escalation in fuel prices, however, there is still a substantial cushion against further price increases, and the progressively advancing technology in gas-turbine aero-engines, outlined elsewhere in this survey, should help to ensure that the airlines keep ahead of rising fuel costs.

Until such time as either a cheap, safe and conveniently usable nuclear power-plant becomes available, or the gas-turbine engine itself is adapted to burn other fuels (such as, say, liquid hydrogen, or even gasoline derived from coal), there is no other type of power-unit available that can meet the world-wide demands now emerging for the gas-turbine engine.

The estimates of the future market in the aviation gas-turbine engine field show a considerable volume of potential business, amounting to upwards of £25bn in the civil field alone, including spares, up to the end of the 1980s, with probably a comparable value in the military aero-engine market.

In the land-based industrial and marine-based gas-turbine

fields, the potential is also vast. One recent estimate is that close to 12,000 units will be required from the main manufacturers in the period up to 1985, collectively amounting to close to 150,000 projected new megawatts of power. A recent study published by Rolls-Royce, for example, showed that there

called "Big Three," which collectively hold about 76 per cent of the world market in aero-engines. They are Pratt & Whitney, of the U.S., the biggest aero-engine builder in the world, with an estimated 42 per cent of the market, General Electric of the U.S., and Rolls-Royce of the UK, each with an

if it wishes to retain, let alone move ahead in, the markets it has already won.

The rest of the Western world gas-turbine aero-engine market is covered by about 50 companies, of whom the biggest include several in France—the State-owned Snecma, the privately-owned Turbomeca and

General Electric, there are the Detroit Diesel Allison Division of General Motors, Avco Lycoming, Garrett-AiResearch and Teledyne. There are of course many other engine companies in the Western world, but they are either smaller or primarily engaged in piston-engines, or rocket engines of various kinds

In the sector of the market above 10,000 hp there is a partial overlap between these two designs and considerable argument about their respective merits. General Electric of the U.S., both on its own and through its manufacturing associates overseas, has a dominant position in the heavy-duty market, but it also, of course, has a direct stake in aero-derived industrial gas turbines. Others have taken steps to keep a foot in both camps, buying in the aero-derived gas generator from one of the aircraft engine builders and incorporating it in their own gas turbine package.

In the industrial market below 10,000 hp some companies, like Avco Lycoming and Detroit Diesel Allison, offer an industrial version of engines which were originally designed to power aircraft. They compete against companies like Ruston, Solar, Kongsberg, Hispano Suiza and Sulzer, whose designs were aimed specifically at industrial applications.

Like the aero-engine market, the industrial gas turbine business is highly competitive, but in contrast to aero-engines current demand is rather sluggish. There is generally thought to be too much capacity in the industry and some companies are being forced to cut back their operations. How soon the situation will correct itself remains

to be seen, but there is pressure on all manufacturers to improve the performance of their machines both to serve existing customers and to create new markets.

Technical development is costly. The development of a new aero-engine alone can cost anything up to £500m, depending on the size of power-plant required. This investment, moreover, is not quickly recoverable, but can be spread over more than a decade before profits flow back. During that time the initial investor, whether government or commercial organisation, has to sit patiently awaiting for the investment to mature, well aware of the risks involved in what is a highly competitive business.

The size of engine investments accounts for the fierceness of the battles now being waged in the world's aero-engine markets, for shares in the new generation of airliners on offer to the air transport industry. It has been estimated that the current re-equipment tide now flowing through the world's airlines will add at least 3,500 new airliners, involving some 10,000 engines or more, between now and the early 1980s, collectively worth some £40bn.

It is also a fact that because of high development costs the focus in gas-turbine engine design is now more on evolu-

### Diverse market trends

By Michael Donne, Aerospace Correspondent

were about 105,000 miles of new oil and gas pipelines either under way, planned or proposed throughout the world, for which a substantial number of gas-turbine pumping or power-generating units will be required, probably most of them derived from aero-engines.

Rolls-Royce's Industrial and Marine Division has sold some 2,000 gas-turbine engines, worth over £500m, in the past 19 years. Many companies are involved in the gas-turbine engine industry. In the aero-engine field, the picture is dominated by the so-

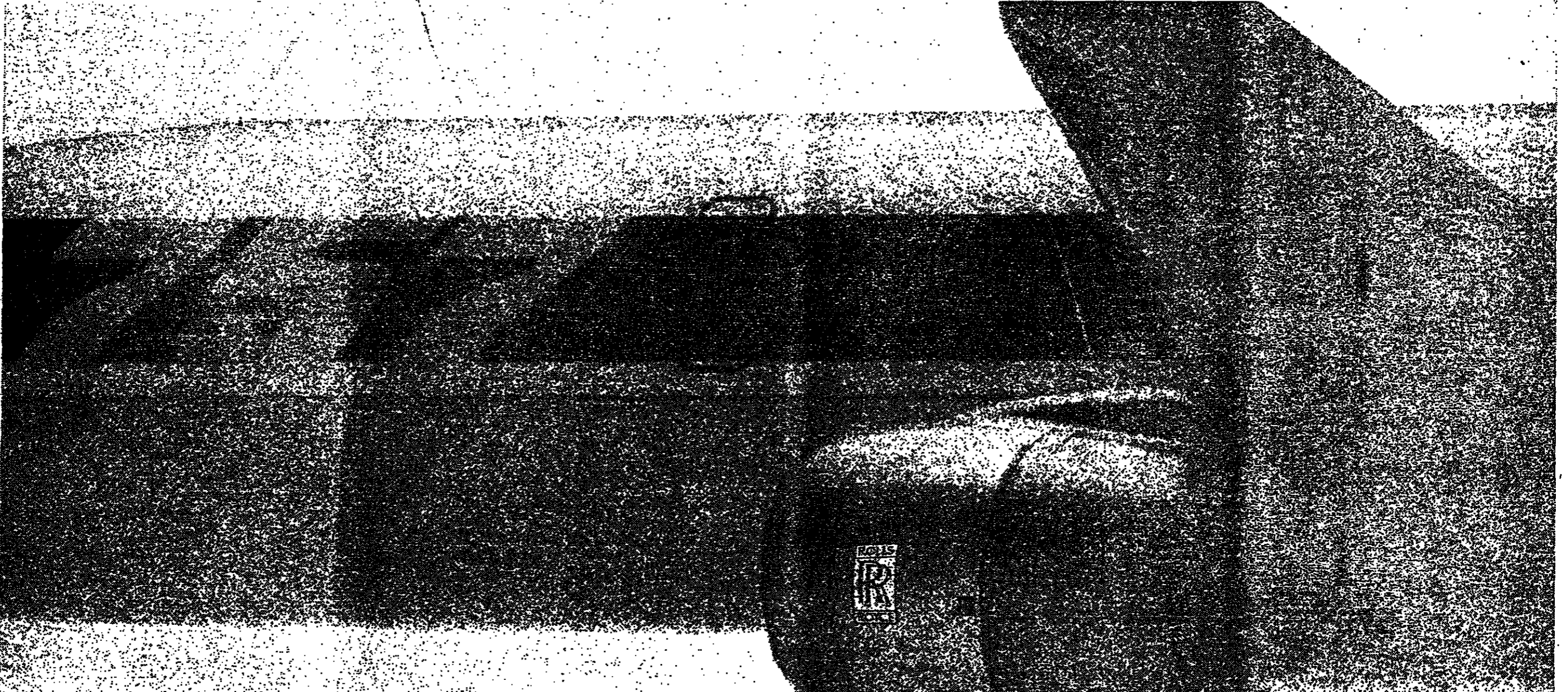
estimated 17 per cent of the market.

The competition between these three giants is fierce, even bitter, and Rolls-Royce makes no secret of the fact that it would like to push its share of the market up to about 25 per cent in the years ahead, at the expense of its two rivals. As this survey shows, to achieve this it is putting heavy emphasis on new developments of the RB-211 engine, including the Dash 535 version for the Boeing 757 airliner, but it must substantially improve its productivity

Microturbo — and two international groups, CFM-International, formed jointly by Snecma and General Electric of the U.S., and Rolls-Royce Turbomeca, formed jointly by the two companies named in that title. Outside France, there is Fiat Aviazione in Italy; West Germany has Motoren-und Turbinen Union and Turbo-Union; in Japan there are Ishikawajima Harima Heavy Industries; Kawasaki Heavy Industries; Mitsubishi Heavy Industries; in Sweden there is Volvo Flygmotor. In the U.S., in addition to Pratt and Whitney and

for missiles and other purposes. Several of these companies, including the "Big Three," are active in the land-based and marine gas turbine markets. As explained elsewhere in this survey, there is an important distinction between the aero-derivative and the heavy-duty industrial gas turbine. The latter has some characteristics in common with the steam turbine and is generally made by the steam turbine manufacturers. These include General Electric and Westinghouse in the U.S., GEC, Kraftwerk Union, Brown Boveri and Stal Laval in Europe.

CONTINUED ON NEXT PAGE



## The engine they couldn't resist.

When the Boeing 757 goes into service in 1983, it will start life with the new Rolls-Royce RB211-535 engines.

These engines are so efficient that the 757 will use 25% less fuel than the aircraft it replaces—saving an estimated £1/2 million per aircraft per year.

No wonder they've already been specified by Eastern Air Lines and British Airways.

But this is by no means the only current success story at Rolls-Royce.

In 1978, four major airlines including Pan American and Qantas ordered Rolls-Royce

RB211 engines for the first time. In the same year we exported a record 47% of what we produced, putting us among Britain's top ten exporters.

We also generated new business which should be worth more than £2,000 million over the years ahead.

In fact throughout the gas turbine world, in civil and military aviation, in industry and on the sea, the story was the same.

More gas turbine users than ever are finding Rolls-Royce very hard to resist.



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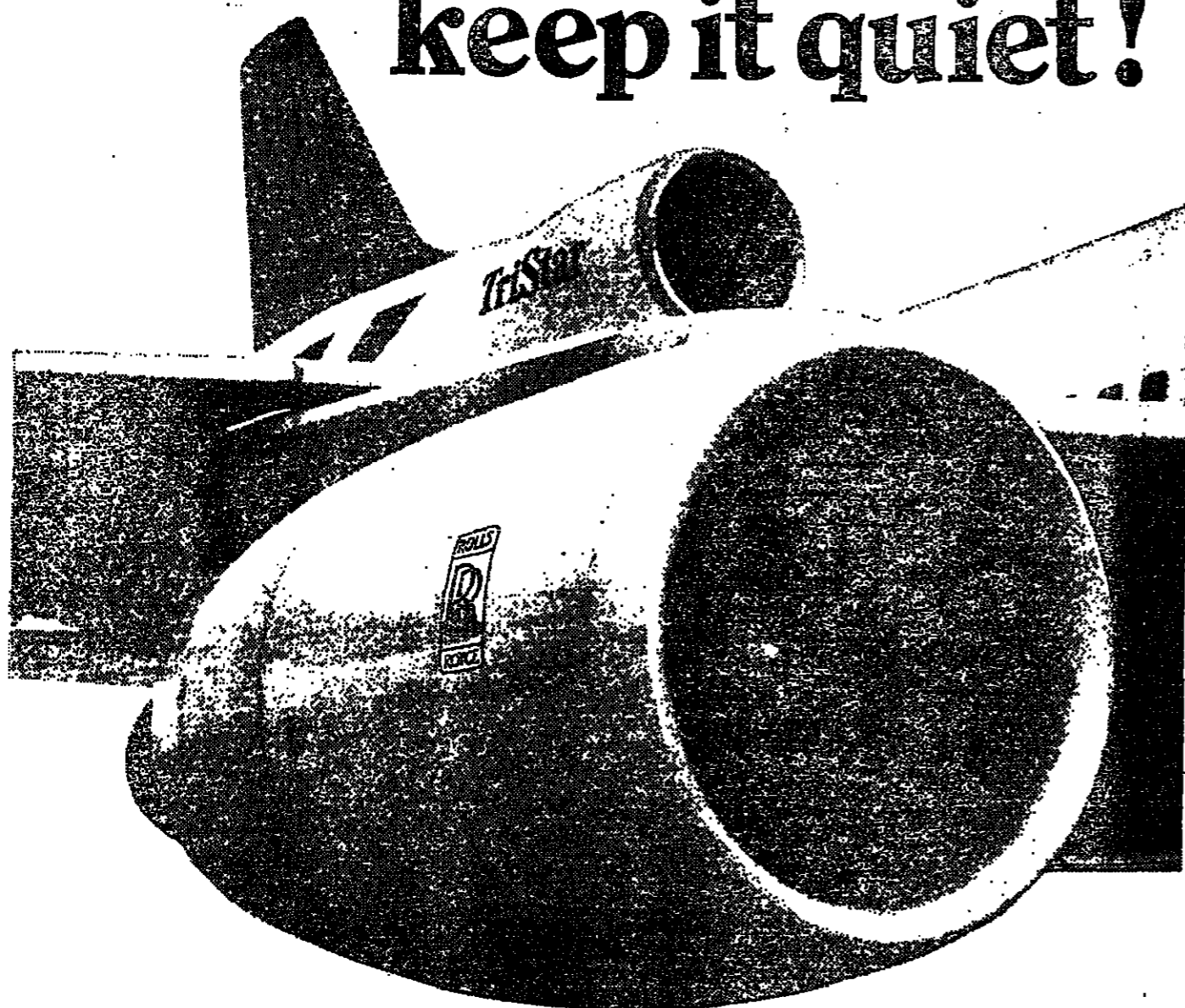
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## AERO-ENGINES II

# Booming military requirement

THE MILITARY gas-turbine aero-engine market during the 1980s is likely to outstrip even the vast civil market, as a result of continuing military expansion programmes being undertaken by many countries, especially in the developing world.

Notwithstanding efforts by the major powers to try to limit strategic nuclear weapons developments, including the numbers of weapons delivery systems, such as supersonic bombers, there remains throughout the world a heavy, unfulfilled and expanding demand for conventional tactical weapons, including tactical combat aircraft. This is just as true of the NATO nations as it is of the developing countries throughout the world, as a result of the need in NATO to try to recover its present imbalance in tactical combat aircraft types vis-a-vis the Warsaw Pact nations.

Thus, although precise figures are impossible to glean because of the sensitive nature of the world market, it is generally believed that upwards of 5,000 new combat aircraft of various kinds will be built through the 1980s, worth an estimated \$30bn, of which the engines and spares element is not likely to be less than about one-third, or one-half, or somewhere between \$15bn and \$25bn. This is only the broadest of estimates, but it does not seem to be seriously disputed in the aerospace industries of the Western world that the military aero-engine market as a whole could well be worth this kind of money in the decade ahead.

Two basic patterns appear to be dominating the development of military aero-engines. One is that because of the high costs of new engine development programmes, even though these may be funded on Government defence votes, there is a tendency to produce "families" or "series" of engines, from a basic engine concept that has already proved its worth. This does not mean that new engine concepts are not required to meet newly emerging military requirements, but where possible every effort is made to draw on existing technology where this is valid, and to use any new technology that evolves as the basis for further derivative engines. This pattern, therefore, is broadly similar to that which has already been apparent for some time in the civil aero-engine field, where "families" of engines have evolved for a wide variety of roles from an original basic concept—such as the RB-211 series, for example.

### Collaboration

The second basic pattern is more evident in the military field than in the civil (where intense inter-company and international competition is the order of the day)—and that is international collaboration, especially among the aero-engine manufacturers of Western Europe. One of the most significant examples of this on this side of the Atlantic has been the collaboration between Rolls-Royce of the UK and Turbomeca of France on the development of the Adour engine, first for the Anglo-French Jaguar jet strike-trainer aircraft, and subsequently for such other aircraft as the Japanese F-1 and T-2 fighter-support and trainer aircraft in service with the Japan Air Self Defence Force, and the UK Hawk ground attack/air-to-air

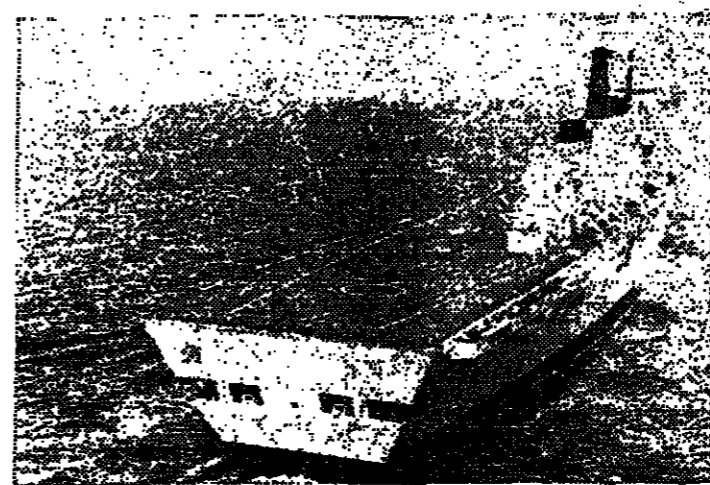
### Market

CONTINUED FROM PREVIOUS PAGE

tionary improvement rather than on searching for radical new concepts. In the aero-engine field in particular, the emphasis has shifted from providing new engines with great range and high speeds to providing improved economies of operation, to meet soaring fuel costs, and greater quietness, to meet increasing environmental susceptibilities.

The trend is towards "derivative" power-plants, with "families" of engines emerging from the concepts which had their technological genesis in the late 1960s and early 1970s. It is unlikely that in the immediate future there will now emerge an entirely new engine, for example, to challenge the Rolls-Royce RB-211, Pratt and Whitney JT-9D or General Electric CF6 series in the "big thrust" class, but rather that each of those companies will spend substantial sums on developing new variants of those engines.

This does not imply that radical technical innovations will not occur—they may have to, if the supply of fossil fuels dries up more quickly than is now thought likely. Should new types of aviation fuel emerge, such as liquid hydrogen or aviation fuel derived from coal, existing types of engine will have to be adapted to burn those fuels, or entirely new types of engine developed. The gas-turbine engine industries are not worried about this situa-



combat and trainer aircraft.

Various versions of the Adour engine have been produced, or still are under development, and in addition to the Anglo-French manufacturing programme, they are to be made under licence in India for the Jaguars bought by that country, while they are also made in Japan by Ishikawajima-Harima Heavy Industries. The engine is on offer in the Hawk trainer to meet a U.S. competition for a new advanced jet trainer, designated VTX, but the engine is also being submitted in its own right in this competition as a possible power-plant for other aircraft, even those of U.S. design.

International collaboration is also being carried further by the recent decision of the Italian Government to develop a new close-support aircraft, the AMX, to be powered by the Rolls-Royce Spey, of which in turn a major proportion will be built under licence in Italy. It is expected that manufacture of the Spey engines, components and spares will continue for at least 20 years for AMX aircraft for Italian Air Force and export customers.

Yet another major example of international collaboration now emerging in the military engine field is that between Rolls-Royce and Pratt and Whitney of the U.S. on the development of the Pegasus vertical take-off engine for the advanced YAV-8B Harrier programme for the U.S. Marine Corps. Two of these aircraft, have been built and are flying, to enable the U.S. to determine upon a substantial production order to meet its Marine Corps requirements through the 1980s. In the event of such an order being placed, it is expected that much of the aircraft will be built in the U.S. by McDonnell Douglas, and that much of the work on the Pegasus engine will be subcontracted by Rolls-Royce to Pratt and Whitney Aircraft.

But the prime example of international collaboration in military engine developments is the RB-199 for the Anglo-West German-Italian Tornado Multi-Role Combat Aircraft (MRCA). This programme calls for 800 production aircraft, with two engines each, so that including spares the overall RB-199 development and production programme envisages over 2,000 engines, worth well over £2bn. This figure does not take any account of the possible export of Tornado aircraft and engines.

The work on the RB-199 is being undertaken by Turbo-Union, a three-nation consortium that comprises Rolls-Royce in the UK, Motoren-und Turbinen Union of West Germany and Fiat Aviazione of Italy. The Rolls-Royce share comprises the Low Pressure compressor combustion

chamber, High Pressure turbine, turbine-casing and reheat assembly. MTU is responsible for the Intermediate Pressure and High Pressure compressors, intermediate casing, gearbox, intermediate Pressure turbine, thrust reverser and the by-pass duct. Fiat Aviazione is responsible for the Low Pressure turbine, exhaust diffuser, rear jet pipe and variable nozzle. A number of RB-199s have already been built for the 16 prototype and pre-production aircraft, and for the early production models of the basic strike Tornado and the first of the Air Defence Variant of the aircraft. Production of RB-199s is now mounting rapidly.

### Standards

Apart from the massive industrial programme that is involved in the three countries on the RB-199, it is regarded as one of the most advanced engines technologically in the Western world, with a high specific thrust (that is, thrust per unit of air mass-flow) and a very low weight. The RB-199 is being built to very high production engineering standards, which have tested to the full the technical capabilities of the companies involved. A number of advanced manufacturing techniques have also been involved in the development of the engine for the first time, including electro-discharge machining, inertia bonding, and shaped-tube electrolytic machining.

The engine is also unique in military engines in that it is being built on the "modular" principle—that is, in comparatively easily assembled parts, so that the engine can be stripped,

HMS Invincible is the first of the Royal Navy's new class of anti-submarine cruisers, powered by four Rolls-Royce Olympus marine gas-turbine engines. This class of 20,000-ton ships—the others are HMS Illustrious, due for commissioning next year, and HMS Ark Royal, now under construction—will each carry Sea King helicopters and Sea Harrier vertical take-off strike aircraft.

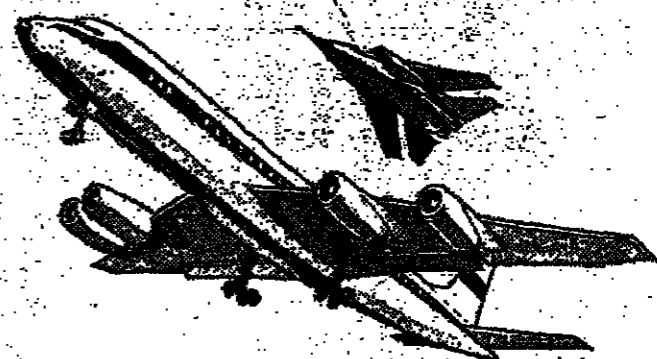
rebuilt, installed in an aircraft and run without having to be tested on a bed. This means that only a minimum of special tooling need be used and once the RB-199 is in service maintenance to a complex standard can be done at Squadron level.

The feature of the programme that has also caused much satisfaction to the three Governments is the smooth development of international collaboration through Turbo-Union itself. In the same way that the Tornado programme through the Panavia consortium could open the way to further aircraft developments in future, it is thought that Turbo-Union could become the logical development centre for future collaborative military aero-engine programmes.

That such programmes are likely to emerge in future is not seriously doubted in the aero-engine industry. It is pointed out, for example, that the Air Staff of the UK, West Germany and France have been discussing for some time the possibility of developing a major new tactical combat aircraft for the late 1980s and beyond, known so far in the UK as Air Staff Target (AST) 403, and intended for the RAF at least, as a potential Jaguar replacement. If such an international airframe venture gets under way, as a means of splitting costs and broadening the market, it seems likely that Panavia would be the logical contender for the airframe development, as a result of its Tornado experience, and that either Turbo-Union, through its RB-199 experience, or Rolls-Royce Turbomeca with an Adour development, would be logical contenders for the development of the engine.

Michael Dome

## Today's Technology Safeguards Tomorrow's Aircraft



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مكازم الأهل

# Big airline suppliers locked in battle

**DOMINATING THE** world's civil aero gas-turbine engine industry at this time is the major battle between the "Big Three" engine builders—Rolls-Royce, Pratt and Whitney and General Electric, both of the U.S.—for shares in a market estimated to be worth between £25bn and £30bn between now and the 1990s for engines in the "new generation" of jet airliners.

This fight stems from the re-equipment tide that is now flowing through the world's airlines, as a result of which it is expected they will order between now and the early 1980s more than 3,500 new airliners, worth upwards of £40bn initially, both to cope with growth and to replace existing ageing, noisy and increasingly fuel-inefficient and expensive airliners with the latest types. These include the Boeing 767 semi-wide-bodied and 757 narrow-bodied jets, the European 250-seater A-300 and smaller 200-seater A-310 Airbus, and the McDonnell Douglas DC-9 Super 80, as well as the latest versions of the existing bigger wide-bodied jets—the Boeing 747, Lockheed TriStar and McDonnell Douglas DC-10.

The aero-engine element of any new airliner is generally estimated to amount to one-quarter to one-third of the fly-away value, including initial spares, and that this amount is likely to be doubled in spares purchases and replacement engines over the 15 to 20 years of in-service life of the aircraft. Thus, the market for engines alone is already assessed at anything upwards of £15bn by the early 1980s, and could amount to double that sum by the early 1990s.

It is a massive market by any standards—and one that is not likely to be damped down by the current energy crisis and the rising cost of fuel. Rather, the spate of new orders likely to be accelerated. This is because the present ageing generation of engines has been rendered increasingly expensive and inefficient by fuel cost increases of the past year or two, whereas the new generation of engines now on offer, such as

the Rolls-Royce RB-211, the Pratt and Whitney JT-9D and the General Electric CF6 series, are all designed, especially in their latest versions, to improve fuel consumption by amounts up to 30 per cent or more over the engines they are intended to replace.

Beyond the immediate re-equipment tide that is now flowing, it is likely that there will be a demand in the mid-1980s for another type of aircraft, the so-called Joint European Transport or JET, to replace existing ageing short-haul types of the 130 to 160-seater class, that are not covered by the new 757, 767, A-300 or A-310. This class of aircraft could run up to as many as 1,500 or more worth £15bn to £20bn, of which the engine element could well amount to as much as £5bn to £10bn.

Because this market has not yet developed, and the precise timing of it is uncertain, its value is not included in the estimates of market size already given. But that it could emerge, is accepted as a real possibility in the airframe and engine industries, and they are already gearing to meet it.

## Tides

But these re-equipment tides in the 1980s, taken together, could well be the last that the airframe and engine makers experience for the best part of the next 20 years. Probably not until the mid to late-1990s will there be any other demand for airframes and engines matching that of the next five years or so. This is not only because the heavy investments involved in the current orders will exhaust the airlines' spending potential for years, but also because the rising cost of fuel and increasing supply difficulties may well effect a revolution in engine and airframe design over the longer-term future.

Aircraft can fly probably just as well on liquid hydrogen, or on gasoline derived from coal, as on existing types of fuel, and it may well be that during the 1980s extensive development programmes will be started to change aviation over in the mid- to late 1990s to different types of fuel, requiring differ-

ent forms of power-plant to burn them and different airframe shapes with which to carry the perhaps greater bulks of the new fuels.

Be that as it may—and increasingly it is becoming accepted as a possibility in the world's gas-turbine aero-engine industries—there can be no doubt as to the bitterness with which the battles for engine orders are now being fought. For the manufacturers know that if they fail to win a substantial share of the orders that will be available in the years immediately ahead, they could be out of the market in the later 1980s and beyond. Once the present round of orders is completed, there is likely to be little more than topping up of the fleets through the rest of the 1980s and 1990s, until the next major re-equipment tide begins to flow in the mid to late 1990s for the next century.

For the current and immediately impending struggle, Rolls-Royce is basing its strategy in the civil market on four basic lines of attack.

1—Continued development of the RB-211 engine in all its forms, from the biggest Dash 524 version of 53,000 lbs thrust, down to the Dash 22 of about 40,000 lbs and the Dash 535 of 30,000 lbs-plus. The RB-211-524 is already used in the Boeing 747 and Lockheed-Dash 500 TriStar airliner, and development is foreseen up to about 60,000 lbs thrust if those aircraft themselves move into bigger versions, as well they might. The Dash 524 is now also under development in another version for the European A-300 and A-310 Airbus. The Dash 22 is already used in the basic and other versions of the TriStar. The new Dash 535 is the engine, on which Rolls-Royce is setting much store for the future, is the launch engine for the new Boeing 757 twin-engine short-to-medium-haul airliner, which has been ordered both by British Airways and Eastern Airlines of the U.S.

2—Development of a new 16,000-18,000 lb thrust engine, the RB-432, intended as an eventual replacement for an existing Spey engine but also as a potential candidate for any

eventual joint European trans-family has now accumulated more than 25m flying hours in port in the 130-plus seat category. The development cost of this engine will be about £300m and recently the Japanese Government decided in principle to join Rolls-Royce in the RB-432 venture, subject to final negotiation of the detailed cost and work-sharing arrangements.

3—Development of a new 5,500 lb thrust engine, the RB-401 for business jet aircraft, to replace the ageing Viper; and 4—A new helicopter engine, the RB-321, coming forward in the mid-1980s for the new generation of civil helicopters now under development or mooted for that period.

These four basic series of engines will be supported by continued production for as long as is necessary of the civil Spey and Viper turbo-jets, and the Dart, Proteus and other turbo-propeller gas-turbine engines such as the Tynce, with continued further development of some of them, such as the Proteus, for industrial and marine uses outside aerospace (where the RB-211 engine is also now finding an increasing role).

## Formidable

But the competition is formidable. Both Pratt and Whitney and General Electric have already won a substantial volume of business with their JT-9D and CF6 series engines in both the Boeing 747, and McDonnell Douglas DC-10, and in the Boeing 767 semi-wide-bodied jet, and in the A-300 European Airbus. General Electric in particular, with its CF6-32 version of the CF6, is also bidding strongly for a share of the engine market in the smaller Boeing 757 airliner.

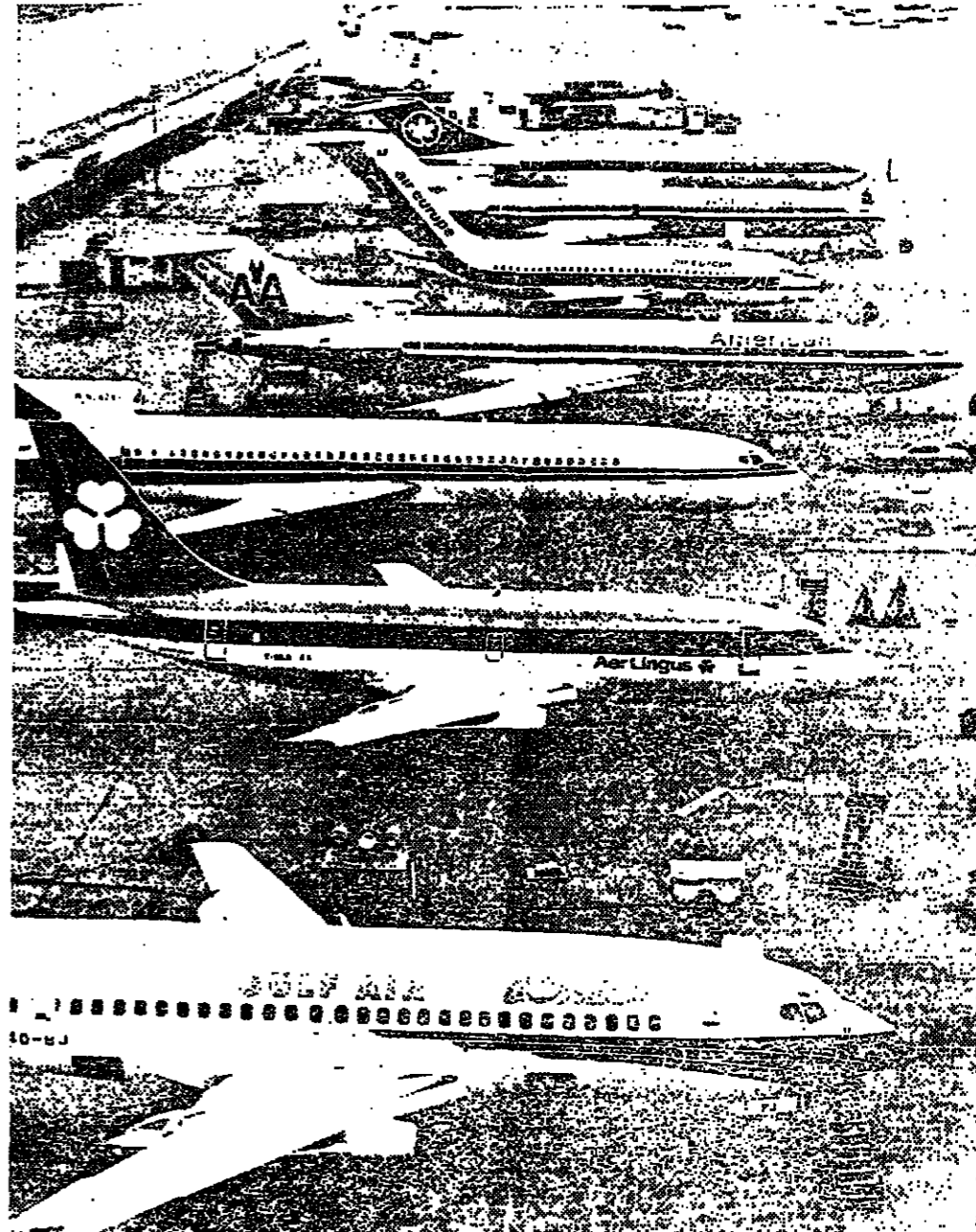
Pratt and Whitney, for example, the biggest aero-engine builder in the world, in the first half of this year sold 223 of its JT-9D engines to 16 U.S. and foreign airlines, worth \$551m. The JT-9D family of engines spans thrusts between about 40,000 lbs up to 55,000 lbs, with further developments planned to higher power ratings. It is in service or on offer for every wide-bodied jet. The JT-9D

which is probably the world's most successful jet engine, with 12 different models powering more than 3,400 jet airliners, including the Boeing 737 (the world's best-selling jet with over 1,700 sold), the Boeing 737, of which over 725 have been sold, and the McDonnell Douglas DC-9. Every day, the world's JT-9D-equipped airliner fleet carries more than 1m passengers.

So far, however, Pratt and Whitney seems to be lagging behind both Rolls-Royce and General Electric in the battle for the new Boeing 757 market. For whereas Rolls-Royce is offering the Dash 535 version of the RB-211 and General Electric has the CF6-32, Pratt and Whitney appears to be slower in developing its JT-40D engine of 36,000 lbs thrust. The company said earlier this summer that it was delaying certification of the engine while it reassessed the market for engines in the 25,000-38,000 lbs range, but that certain hardware work continued in association with MTU and Fiat.

In addition to all these engine developments, General Electric has teamed with Snecma of France to develop the CFM-56 engine, a 22,000 lb-plus power plant that has been widely selected to re-engine existing ageing Douglas DC-8 jet airliners, and which later this year is also to be test-down in a Boeing 707, thereby perhaps opening a major market for re-engineing that airliner also. The total business in this type of market has been estimated at up to 3,000 engines through the 1980s, worth well over \$6bn.

In the forthcoming development of the smaller 130-160 seater aircraft, the so-called Joint European Transport (JET), the competition for the Rolls-Royce RB-432 is likely to come from Pratt and Whitney, with its Types 209 and 217, which are smaller versions of



The Flight Line at Boeing Commercial Airplane Company's Seattle delivery centre, showing twin-engined 737s, three-engined 727s, and (in the background) a U.S. Air Force Airborne Warning and Control System (AWACS) aircraft. All these aircraft use various models of Pratt & Whitney jet engines.

the already highly successful JT-9D engine. The 209 has a thrust rating of 18,500 lbs and the 217 a thrust of 20,000 lbs.

Also a contender in the JET market is likely to be the Snecma-GE CFM-56, which is also being offered in a "derated" version of about 18,000 lbs thrust. All of these engine designs are flexible—that is to say, they are capable of being adapted if necessary to meet the changing requirements of the airframe designers. The most vital point, however, is for the engine manufacturers to ensure that they are there,

able to offer firm engine designs at the right time—the price of not being able to do so could be high in terms of missed market opportunities.

## Linch-pin

For this reason, Rolls-Royce will probably continue to need some Government funds for the development of the other new engines in its programme beyond the RB-211—such as the RB-432 and the RB-401. Hitherto, most of its resources have been devoted to developing the RB-211 family, which must

remain the linch-pin around which its future success in civil engine markets must depend, especially with the Dash 535.

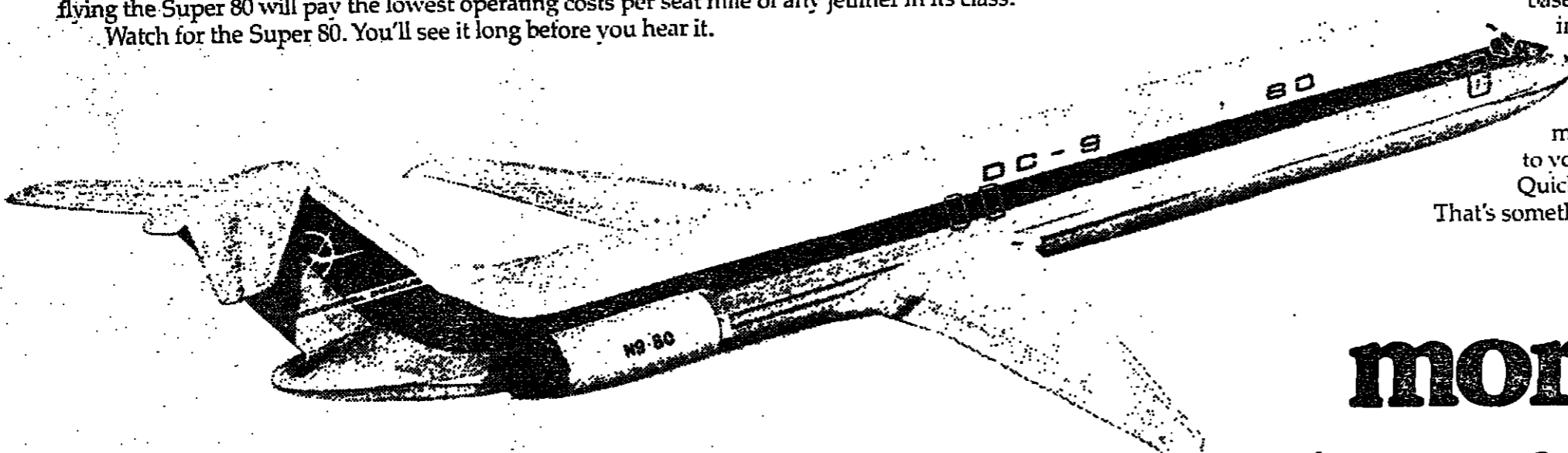
But the world aero-engine market is expanding, following the trends already evident in the widening range of civil aircraft already on offer in world markets. The development of "families" of engines in the RB-432/401 series could be just as vital to the UK company in the long run as the RB-211 has been over the past ten years and promises to continue to be through 1980s and beyond.

M.D.

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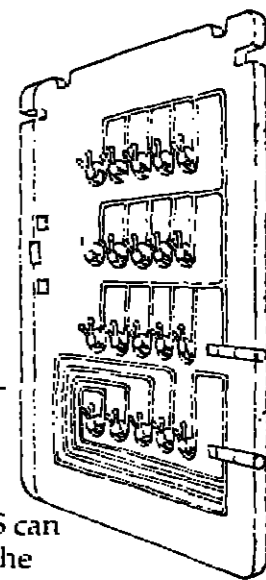
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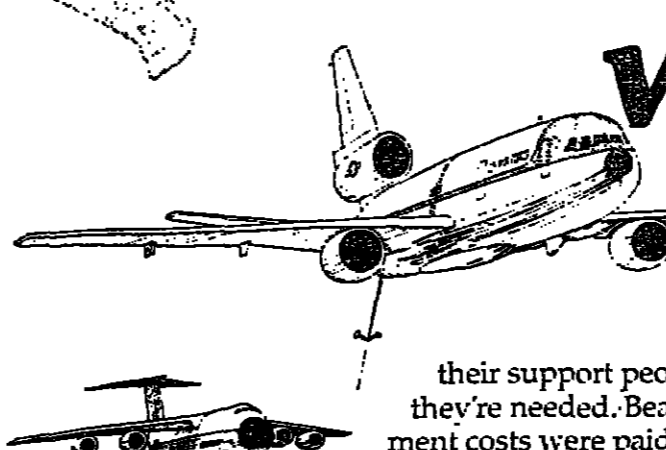
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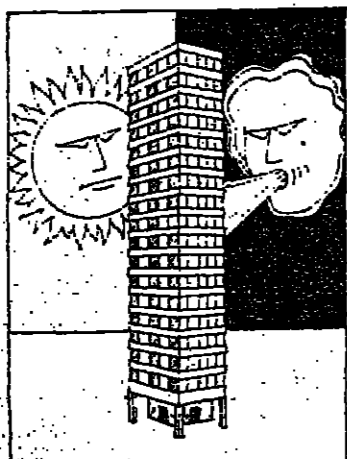
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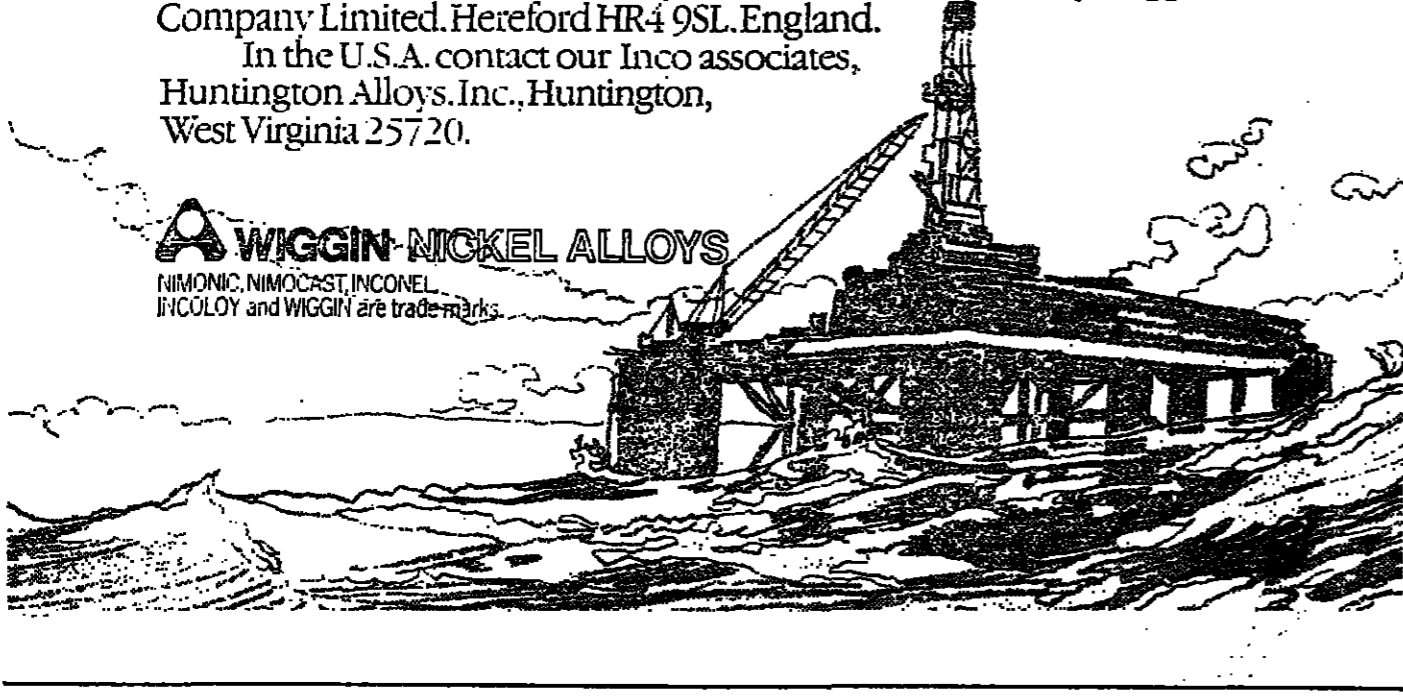
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# AERO-ENGINES IV

## World oil industry a major customer

THE GAS turbine business is an international business. No where is this more apparent than in the sector below 10,000 horse power, where the leading British contender, Ruston Gas Turbines, has established a strong world position without the benefit of a significant home market. More than 95 per cent of the output from its Lincoln factory is exported.

By far the largest customer in this part of the business is the oil and gas industry which is itself highly international, though strongly influenced by American standards and operating experience. Even the North Sea, where Ruston has obtained some sizeable orders, is not a home market in the normal sense of the term; decisions on which gas turbines to use for an offshore platform in the North Sea are almost as likely to be taken in Houston as in London.

### Displace

Ruston is now producing about 130 gas turbines a year. Fifteen years ago the figure was more like 8-10. This remarkable growth has occurred in ways which were not foreseen when the first gas turbines were designed in Lincoln just after the war. At that time Ruston Gas Turbines' predecessor company, Ruston and Hornby, was a major producer of diesel engines and there was some anxiety that the gas turbine, developed successfully during the war for aircraft applications, might displace the diesel engine in some markets.

So in 1946 a team of engineers who had worked with Sir Frank Whittle on the jet engine, led by Mr. G. B. R. Felden, began work on an industrial gas turbine. The first prototype was successfully tested in 1949 and the next year manufacturing facilities were set up for batch production of industrial gas turbines. The first orders were from the Air Ministry for three air transportable generating sets but it was not long before the attractions of the small gas turbine for oil field applications began to be appreciated. In 1952 Ruston received an order for a gas turbine-driven crude oil pumping set from the Kuwait Oil Company.

The gas turbine proved to be ideally suited for carrying out a number of functions in oil and gas fields, both offshore and onshore. It was reliable, it did not need cooling water, it required very little maintenance, it could run on the gas which was available on the site, and it was readily compatible with the type of equipment—generators, pumps and compressors—which it was required to drive. It is used for pumping, for gas compression, for water injection, for the reinjection of gas—particularly important as producers seek to avoid flaring off gas—and for pipeline applications.

For Ruston there was no domestic oil and gas market until the North Sea reserves were discovered and the company has had to seek domestic outlets in other sectors. Of the 1,200 engines which the company has sold, some 93 have been used in what are called combined heat and power (CHP) applications, providing a factory with heat and power from a single gas turbine installation and achieving a thermal efficiency as high as 65-70 per cent. In the UK CHP contracts have included installations for John Player, Boots and the Singer factory at Clydebank. This business is certainly capable of further development, given competitive gas prices, but for the next few years at least the fortunes of Ruston Gas Turbines are mainly dependent on the international oil and gas industry.

To build the business Ruston has had to sell itself not only to the oil companies but to the consultants and contractors who influence decisions on procurement. It was for that reason that Ruston created first a selling operation and later a manufacturing base in Houston, Texas, sometimes regarded as the energy capital of the world. This decision was not only directed at the American domestic market (although Ruston has sold some 60 gas turbines in the U.S., including Alaska where the potential is considerable), but at all customers round the world who tend to be influenced by American oil companies and American consultants.

One of the most important international customers in recent years has been Pemex, the Mexican State oil company, which has placed substantial orders with Ruston—most recently a valuable order for 24 sets, one of the biggest in Ruston's history. There were 12 bidders for this order, four European and eight American, and the existence of the Houston facility played a major part in Ruston's success.

The main role of this facility is to produce the package which the customer requires. It takes a basic engine supplied from the Lincoln factory and fits to it peripheral items like air filters and the driven equipment (generators, pumps and compressors). Much of this equipment is sourced in the U.S. (or wherever the customer wants it) and the American content of a Ruston package

supplied in the Western hemisphere may be as high as 50 per cent or more.

Makers of generators like GE and Westinghouse, pump manufacturers like Bingham, United, and Byron Jackson compressor manufacturers like Dresser Clark, Elliott, Ingersoll Rand and York—these equipment suppliers play an important role in the gas turbine business. They are banging on the customer's door persuading him to specify their equipment; in the case of Ruston's recent Pemex order, for example, the customer chose Dresser Clark compressors.

In most oil and gas installations the gas turbine supplier is the main contractor, although there are cases where the compressor maker plays this role. Some of Ruston's competitors, like Sulzer of Switzerland and Solar Turbines of the U.S., make their own compressors, but Ruston itself is free to work with whichever supplier of the driven equipment is specified for a particular contract. Ruston has, however, teamed up with one of the leading American compressor manufacturers, Elliott, to offer the "Phoenix" natural gas compressor package, with a Ruston TB 3000 gas turbine driving an Elliott compressor. Both companies market the package to the oil and gas industry and the equipment is designed for gas lift, gas-oil separation, natural gas liquids plants and gas gathering operations.

In Tesaco's Tartan Field in the North Sea there are 13 Ruston gas turbines and the driven equipment includes Elliott compressors and Weir pumps. British Petroleum's Forties Field has 32 Ruston gas turbines. Twelve of them are fitted to GEC generators, twelve to Weir pumps and the other eight to Ingersoll Rand compressors.

The North Sea has been a valuable source of business for Ruston, but there is fierce competition for every order and not just from other European companies. Not surprisingly, Kongsberg of Norway has won a substantial share of the business in the Norwegian fields, while among the U.S.-owned companies Solar Turbines has proved to be a formidable competitor.

This company, a subsidiary of International Harvester since 1960, produced its first turbine in 1948; it was used as an auxiliary power unit for air-

### SOME MAJOR PRODUCERS (Below 10,000 hp)

Ruston Gas Turbines	(UK subsidiary of GEC)
Kongsberg	(Norway)
Sulzer	(Switzerland)
Hispano Suiza	(France, subsidiary of Suezma)
Solar Turbines	(U.S., subsidiary of International Harvester)
Ingersoll Rand	(U.S.)
Dresser Clark	(U.S., subsidiary of Dresser Industries)
Arco Lyeomung	(U.S., subsidiary of Arco Corporation)
Garrett	(U.S., subsidiary of The Signal Companies)
Detroit Diesel Allison	(U.S., subsidiary of General Motors)
F Pratt and Whitney Canada	(subsidiary of United Technologies)

Note: In this size range Ingersoll Rand normally uses an Allison gas generator, Dresser Clark a Garrett gas generator.

craft and to power portable pumps. The 1100 hp Saturn industrial gas turbine was introduced in 1957 and the 3830 hp Centaur in 1969. More than 4,000 of these two machines have been installed around the world, a third of them outside the U.S.

### Efficiency

Three years ago Solar moved significantly up the horse power range with the introduction of the 10,450 hp Mars, providing considerable improvements in fuel efficiency. One recent European order was from BEB Gewerkschaften in Germany, which is installing two Mars gas compressor packages at the Rysum station near Emden; they will be used to transmit gas from the Ekoisk field into the distribution system.

Solar, which makes its own range of centrifugal compressors matched in the output and speed of the Saturn, Centaur and Mars engines, has won some sizeable business in the North Sea. In the Heather Field, for instance, where Union Oil is the operator, there are 14 Solar gas turbines driving generators, pumps and compressors. More recently the Danish underground consortium placed a much sought-after order for ten Solar Centaur sets. This contract, believed to be worth around \$25m, involves a full turnkey installation by Solar.

As the accompanying table shows, Solar is one of a number of U.S.-based manufacturers which are active in this sector of the market below 10,000 hp, while important European contenders

include Sulzer, Kongsberg and Hispano Suiza of France. Although some of the gas turbines being offered are directly derived from engines which were designed to power small jet aircraft or helicopters, there is not the same distinction or rivalry between the heavy-duty and the aero-derivative designs as there is in the higher horse power ranges, discussed in a separate article in this survey.

All the manufacturers are striving to improve the power-to-weight ratio of their engines and to reduce the cost per horse power; there is a continuing tendency for unit sizes to go up. At the same time the leading companies are engaged on development programmes to find alternative fuels to gas and distillates.

As for the market prospects, the industry has been hit by the virtual disappearance of Iranian business. There is concern over the reluctance of the leading OPEC countries to increase their oil and gas production, although there are hopes of useful business in such areas as Iraq, the Gulf and Algeria. Fortunately Mexico has taken up part of the slack. More generally it seems reasonable to assume that rising fuel costs will improve the economics of smaller fields, both onshore and offshore. A speed-up of exploration in these new areas should create plenty of opportunities for the manufacturers of gas turbines below 10,000 hp, since these machines are ideally suited to providing the power requirements of smaller fields.

Geoffrey Owen

# The momentum of development

THE DEVELOPMENT of the gas-turbine engine in all its forms cannot stand still. The business worldwide is so intensely competitive that all the manufacturers have to maintain high levels of research into product improvement. In addition, the external pressures upon them, from soaring fossil-fuel costs and actual and impending environmental pressures, are forcing an acceleration in the rate of technological change. The manufacturers must respond to these challenges or find themselves left further behind in the battle for world markets, and this must lead to increased cash investment in the industry in the years ahead.

This is especially so in the UK aero-engine industry, where despite the heavy investment already made in the various versions of the RB-211 engine, substantial additional funding will be required soon to put the new RB-342 and RB-401 engines into full development to meet new emerging airliner and executive jet markets that the RB-211 is not designed to reach. But in addition to these substantial sums, continuing funding at a smaller but no less significant level is required, so as to keep existing engine programmes up to date with rapidly changing technology and swiftly developing social forces and market trends.

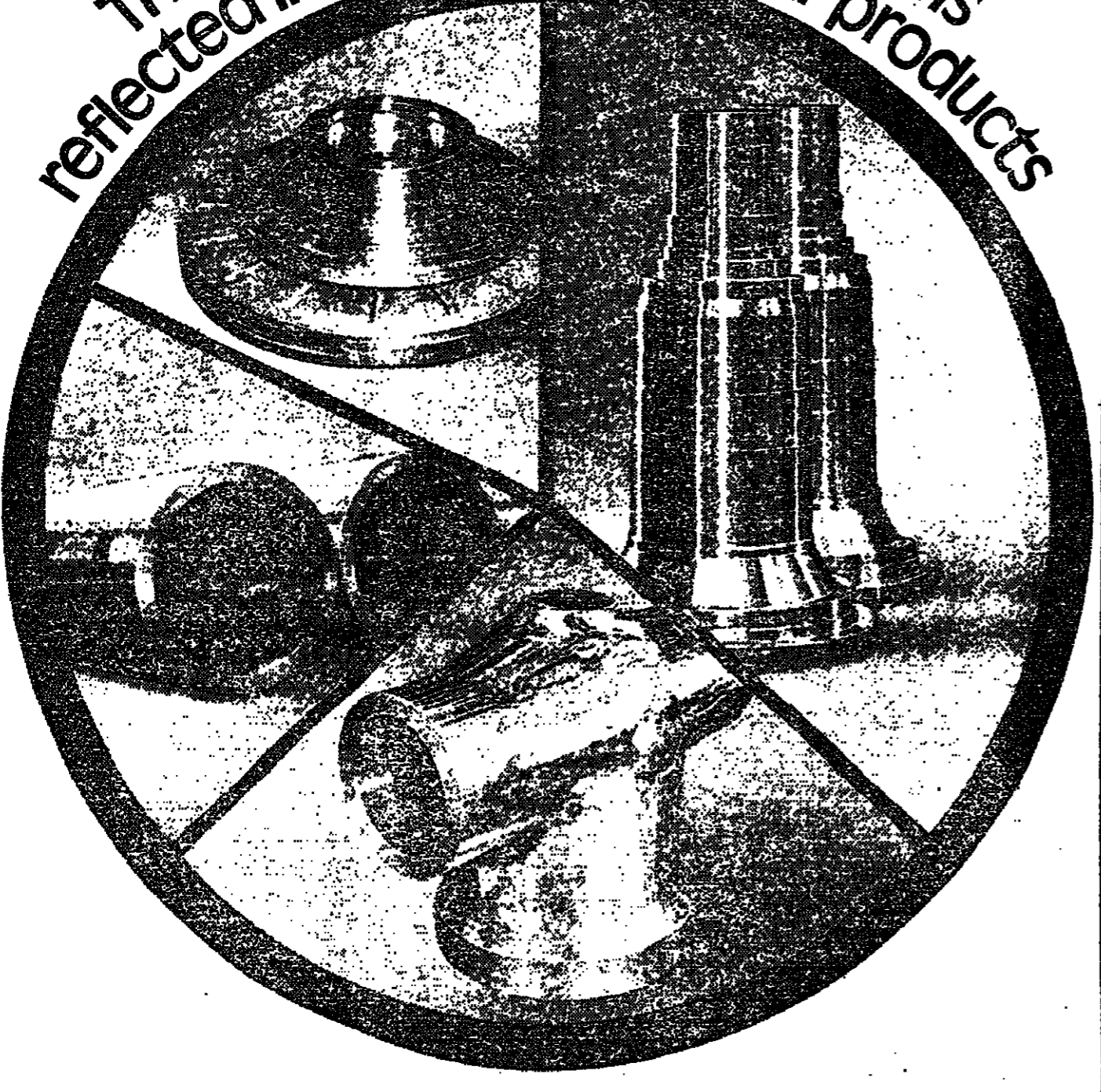
Various other Rolls-Royce programmes now under way include the Quiet Engine Demonstrator (QED), the Advanced Core Engine Technology (ACTET) programme, the High-Temperature Demonstrator (HTDU), and the Life and Methods Design Programme, which is aimed at establishing the most accurate design methods possible to get the best engine performance.

The QED programme, which has been underway for several years, involves a wide range of tests on a full-scale RB-211 engine to establish methods of further quietening current and future versions of the engine. These include in turn the use of noise-absorbent linings and better methods of mixing the hot and cold exhaust gas flows from a large fan engine—a technique used on earlier low bypass ratio engines such as the Spey and Conway but not so far applied to high bypass ratio engines.

The HTDU is another long-running programme which has provided invaluable experience on the operation of engines at higher temperatures than those so far used in service. These and other developments will make a major contribution to technological experience, leading to the design of more advanced

CONTINUED ON PAGE VI

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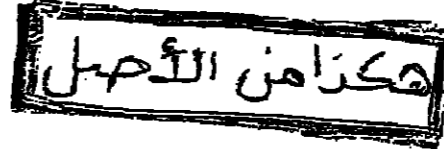
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# Heavy turbine contest

LAST MONTH, after an exceptionally fierce contest involving many of the world's leading gas turbine builders, General Electric of the U.S. (GE) won a \$220m contract for the supply of 18 gas turbines and related equipment to the city of Riyadh in Saudi Arabia. Brown Boveri of Switzerland and Hitachi of Japan are the two companies which are believed to have come nearest to taking the business away from GE.

Although the order was for a 60-cycle supply system—which favoured the American—and ruled out some of the Europeans—the intensity of the competition and the fact that GE won it illustrate two important aspects of the industrial gas turbine industry today.

First, there is too much capacity chasing too few orders. The U.S. market has been slack for the past three or four years, while some important customers in the Middle East—notably of course Iran—are buying fewer gas turbines or none at all. Most people in the industry think that demand is on a temporary plateau and that an upswing will come in a couple of years. Meanwhile there is a fight for every order and intense pressure on margins. A sign of the times is the recent decision by AEG-Kanis of Germany to cut back its gas turbine operations drastically.

## Competitive

Secondly, the fall in the value of the dollar has made the U.S.-based manufacturers highly competitive, particularly against Japan, Germany and the UK. Another American company, United Technologies, won a big Saudi Arabian order last autumn for 33 gas turbines to be used on the new trans-Arabian pipeline.

GE's success in Riyadh points to a third characteristic of the industry which, though not new, continues to worry its rivals. This is that GE and its manufacturing associates (see Table 2 on the structure of the industry) account for at least half heavy-duty industrial gas turbines installed in the world each year.

GE itself installed the first U.S. commercial power generation gas turbine in 1949 and since then has sold more than

1,500 units for electric utility service. Another 1,500 units have been sold in the pipeline industry, for industrial process drives, in industrial power generation and in offshore oil and gas platforms.

This powerful presence in the market is reinforced by the activities of GE's manufacturing associates. Although the associates compete against each other and against GE itself, they build gas turbines to GE's designs and they are required to obtain certain key components—the high-technology parts of the engine—from GE in the U.S. They pay no royalty or licence fee but their purchases provide GE with valuable economies of scale in the manufacture of these major components and help to support continued investment in research and development. The share of the world market held by the GE "family" has tended to increase in recent years.

The only UK-based GE manufacturing associate is John Brown Engineering, which has built a strong position in the world market. Most of its business has been in electricity generation and it has a turnkey contracting capability.

Five years ago John Brown won some very large contracts for pipeline applications in the Soviet Union and for a period output at the Clydebank factory was running at about 45 turbines a year. Since then the market has slackened and, with the trend towards fewer machines of larger size, the factory is now running at about 20 machines a year. One of its biggest orders has been for 18 gas turbines installed in the aluminium smelter at Bahrain. With a total output of 280 MW, this is the largest gas turbine installation of its type in the world.

Competition to the GE "family" comes on two fronts. First, there are the companies which, like GE, designed and developed their own heavy-duty industrial gas turbines after World War II. These include Westinghouse in the U.S., Kraftwerk Union (KWU) in Germany, Brown Boveri in Switzerland and Germany, Stal Laval in Sweden and GEC Gas Turbines in the UK (the other GEC subsidiary in this field, Ruston Gas Turbines, operates in a lower horse power range which

**TABLE 1. MAIN APPLICATIONS**

<b>ELECTRIC UTILITIES</b>
Standby power
Peak lopping power
Base-load power
<b>INDUSTRIAL POWER GENERATION</b>
Use of gas turbines by factories to provide their own source of power independent of the grid, usually with waste heat recovery.
<b>PIPELINES</b>
Use of gas turbines coupled to pumps or compressors in oil and gas pipelines.
<b>OIL AND GAS—OFFSHORE</b>
Use of gas turbines to provide power on offshore platforms.
<b>OIL AND GAS—ONSHORE</b>
Pumping (oil or gas), reinjection.
<b>MARINE</b>
Aero-derivative gas turbine is favoured power plant for naval ships and for civilian applications where light weight and compactness are required, such as hovercraft.

constitutes almost a separate industry, discussed in a separate article).

The heavy-duty gas turbine, as the name suggests, is a rugged design, reflecting the companies' background as steam turbine manufacturers. In a number of applications it faces competition from the light-weight, aero-derivative industrial gas turbine. In the higher horse power ranges this machine is based on a gas generator made by one of the three leading world engine builders—United Technologies (the parent company of Pratt and Whitney), General Electric of the U.S., and Rolls-Royce in the UK.

These companies participate in the industry both as sub-contractors—supplying the gas generator to other companies for incorporation in a complete gas turbine package—and as main contractors, designing and selling their own packages. General Electric is the only one of the three which manufactures both heavy-duty and aircraft-type gas turbines; historically the aero-derivatives have been a relatively small part of its total industrial gas turbine business, although it is an important addition to its competitive strength. The relative attractions of the aero-derivative and the heavy-duty gas turbine are illustrated

in Table 3. While there are certain applications for which only one or the other is suitable, there is a wide area of overlap. This was a notable coup for Rolls-Royce when, in 1976, the consortium of which it was a member won a £100m order for 42 gas turbine compressor sets from the Soviet Union. The sets are being installed as booster stations on a major Soviet gas pipeline. The significance of the order was that until then the Soviet Union had virtually standardised on heavy-duty gas turbines for pipeline applications, supplied either by General Electric or one of its associates.

The consortium, called Coberrrow, consisted of Rolls-Royce, which supplied the Avon gas generator, Cooper Energy Services, subsidiary of Cooper Industries of the U.S., providing the power turbine and the compressor, and Willbrox (Overseas), subsidiary of Williams International Group, providing project management and engineering services. The outcome of the Soviet competition was in doubt until the very last moment, with General Electric of the U.S. and GEC Gas Turbines just pipped at the post.

It appears to have been its success in winning this large Soviet order which led Rolls-Royce and Cooper, two years later, to form a joint company to supply gas turbine compressor sets to the world oil and gas industry. Until that time Rolls-Royce had participated in what is sometimes called the mechanical drive market (gas turbines driving compressors or pumps), primarily as a sub-contractor. GEC Gas Turbines as main contractor has been a major user of Rolls-Royce gas generators for mechanical drive applications. Other important customers include Cooper, Ingersoll Rand and Dresser Industries; these are American companies, although the first two have substantial manufacturing facilities in the UK. At about the time the new Cooper Rolls company was announced, Sulzer of Switzerland had just introduced a range of light-weight gas turbine compressor sets incorporating the Rolls-Royce Avon.

Rolls-Royce, whose industrial and marine division is based at Ansty, Coventry, argues that there was pressure from the end-users for the gas generator sup-

plier to be more closely involved in the business than was possible in a sub-contractor role. The new association with Cooper would strengthen its position in the market and would certainly not preclude it from continuing to sell gas generators to main contractor customers such as GEC Gas Turbines and others. Cooper Rolls and other customers would be treated on an even-handed basis.

Another bone of contention had been Rolls-Royce's decision, a few years earlier, to establish itself as a main contractor for packaged gas turbine power stations. First the SK20, based on the Olympus engine, was sold to Saudi Arabia, Australia and elsewhere and more recently the SK30, also built round the Olympus, has been sold successfully for both offshore platform uses and utilities. The biggest overseas order is for four SK60s (the doubled-up version of the SK30) to be delivered to Egypt in the first quarter of 1981. Rolls-Royce's industrial business is split in roughly equal proportions between marine applications (it has sold more gas turbines to the world's navies than any other manufacturer, with GE of the U.S. its nearest competitor), power generation and mechanical drive. An increasingly important part is being played by the second generation engines, the RB-211 and the Spey, which provide greatly improved thermal efficiency.

## Soured

It is unfortunate that Rolls-Royce's decision to go its own way as a main contractor has soured relations to some extent with the UK's major independent gas turbine company, GEC Gas Turbines. Based at Whetstone, Leicester, GEC Gas Turbines started in the business thirty years ago with its own designs of heavy-duty industrial gas turbines. When the aero-derivatives started gaining ground in the early 1960s GEC developed a close relationship with Rolls-Royce and has sold over 500 of its gas generators, both for power generation and for mechanical drive.

In the past few years, however, it became apparent to GEC Gas Turbines that for larger installations, where the customer wanted power in the 60-100-MW range, an arrange-

TABLE 2. SOME MAJOR MANUFACTURERS (Above 10,000 hp.)

<b>HEAVY DUTY GAS TURBINES</b>	<b>GENCO Gas Turbines (UK)</b>
General Electric—U.S.	Kraftwerk Union (Germany)
GE Manufacturing Associates:	Brown Boveri (Switzerland)
AEG-Kanis (Germany)	Stal Laval (Sweden)
Thomassen (Holland)	
John Brown Engineering (UK)	<b>AERO-DERIVATIVE GAS TURBINES</b>
Kvaerner Brug (Norway)	United Technologies (U.S.)*
Nuovo Pignone (Italy)	General Electric (U.S.)*
Hitachi (Japan)	Rolls-Royce (UK)*
Hitachi Shipbuilding and Engineering (Japan)	GEC Gas Turbines (UK)
Mitsui Shipbuilding and Engineering (Japan)	IHI (Japan)
GE licensee:	Sulzer (Switzerland)
Alstom Atlantique (France)	Stal Laval (Sweden)
Westinghouse (U.S.)	Dresser Industries (U.S.)
Westinghouse licensees:	Cooper Industries (U.S.)
Fiar (Italy)	Ingersoll Rand (U.S.)
Mitsubishi (Japan)	Curtiss-Wright (U.S.)

\*These three companies take the jet engines which they manufacture for aircraft and modify them for industrial use, as gas generators supplying hot gas to a power turbine. For some of their gas generators the three aero-engine builders design and make their own power turbine and take responsibility for the complete package. Others are supplied to outside companies, including those listed above, for incorporation into their own gas turbine packages, whether for electricity generation or for driving compressors or pumps.

ment based on, say, four gas generators driving two power turbines did not provide what was needed. In this part of the market GEC found itself losing orders to companies like Brown Boveri, KWU and Westinghouse which were offering their own designs of rugged, heavy-duty single-shaft machines. Thus GEC introduced its own single-shaft machine, the EM-610, which has proved successful. The most recent order was a £10m contract to supply two gas turbine sets for power generation to the city of Athens.

So GEC continues to have a strong position in both the heavy-duty and the aero-derivative sides of the business; in the latter it can now offer General Electric's second generation engine, the LM-5000 (the industrial version of the CF-6-50), although the bulk of its business remains with Rolls-Royce.

There will be a market for both types of machine and there are obviously advantages in having a foot in both camps. John Brown Engineering, which has been highly successful in selling heavy-duty machines, recently extended its agreement with GE to cover the LM-2500 aero-derivative engine. But the big uncertainty, particularly after the latest increase in oil prices and the renewed stress on energy conservation, is how large the market will be and how fast it will grow.

In the power range above 10-MW the annual demand for gas turbines is thought to be running at around 13,000-MW per annum, with the U.S.

domestic market accounting for about 2,000-MW or slightly less. The main applications for industrial gas turbines are set out in Table 1. Demand for gas turbines in pipelines and for oil and gas offshore installations should continue to grow as new producing areas (for example in China and Mexico) are discovered and developed. As for electric utilities, the main market will continue to be in developing countries where neither the demand pattern nor the infrastructure permits the construction of large electricity grids based on the steam turbine.

In the developed countries utilities have used gas turbines partly for standby power to provide emergency back-up capacity which can be brought on stream within a very few minutes of the breakdown in the main system. A second major outlet has been for peaking power, to provide additional

power during those short periods of the day or year when there is an exceptionally heavy load on the system and it is not economic to provide the capacity in the main system.

Demand in both these applications should continue to grow, but the industry is hopeful that a new source of demand will stem from the development of combined cycle operations. This involves the linking together of gas and steam turbines in a way which uses the waste gas for additional power generation. Use of the combined cycle yields considerable improvements in thermal efficiency, to levels well in excess of 40 per cent. General Electric is working on designs of a new, very high temperature water-cooled gas turbine which in combined cycle applications would achieve thermal efficiencies approaching 55 per cent.

Geoffrey Owen

TABLE 3: HEAVY-DUTY VERSUS AERO-DERIVATIVE HEAVY-DUTY GAS TURBINE

The air compressor, combustion system and the turbine are part of an integral construction, arranged either on a single shaft for constant speed (particularly for electricity generation in the 25-125MW range, in base load and peak lopping applications) or in a two-shaft configuration for variable speed. These designs are rugged and totally reliable.

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## AERO-ENGINES VI

# Component specialists

SUPPLYING COMPONENTS to the gas turbine manufacturers is not a business for the faint-hearted. There are at least three factors which make this industry a peculiarly difficult and challenging one.

First, much of it involves highly specialised skills and technologies. Makers of such items as compressor blades, turbine discs and a variety of other cast, forged and fabricated components have to master the art of manipulating high-alloy materials in ways which are well in advance of conventional mechanical engineering. Since the technologies are continuing to move ahead, there is unrelenting pressure for investment in new equipment to stay ahead of the game.

The customers are small in number and exceptionally demanding. They have the ability to fill at least part of their requirements for key components internally. It is that competition, rather than the threat of new companies coming into the business, which keeps the component suppliers on their toes.

Secondly, it is an international business. The major gas turbine manufacturers naturally prefer to source the bulk of their component supplies in their home country but there are several reasons why they are obliged to look more widely. The number of companies in the world which are capable of forging, say, the compressor and turbine discs for the new generation of large aero-engines, using nickel-base super-alloys or titanium, is probably not more than half-a-dozen. For reasons of security, and to make use of the skills and capacity which are available, the gas turbine manufacturers tend to spread their orders among the suppliers qualified to do the work.

Rolls-Royce's major component suppliers include UK-based companies like Lucas Aerospace, Dowty, Cameron Iron Works, Daniel Doncaster, Associated Engineering and Short Brothers, but an important role is also played by American and Continental companies. Among them are TRW and Ex-cell-O for blade machining, Ladish and Wyman Gordon for major forgings, Garrett AirResearch for various accessories including thrust reversers and turbine starters, and Thyssen of West

Germany for precision castings and forgings.

Thirdly, the industry is extremely cyclical. On the aero-engine side, especially as far as the big jets are concerned, it often seems to be a case of feast or famine. Either the world's airlines are buying nothing or they are going through an orgy of re-equipping which puts considerable strain on the gas turbine manufacturers and their component suppliers.

In theory the demand for land-based applications should provide a steady influence but this side of the business, too, has its ups and downs. The fact that much of it comes from developing countries whose political and economic prospects are unpredictable adds to the excitement; the virtual disappearance of the Iranian market in the past year is one illustration.

At present the component industry is very busy as it gears up for the re-equipment programmes getting under way in the world airline industry. Unless the latest oil-price rises puts a totally unexpected brake on the airlines' plans, demand should continue at a high level for at least another two or three years. The production rate of the Rolls-Royce RB-211, for example, is scheduled to rise at a spectacular pace and the big American engine builders are in a similar position.

### Scramble

The result is something of a scramble for machining capacity. Most of the component makers are working flat out and supplies of some of the alloy steels and other special metals which the industry needs are tight. Companies in the Johnson Firth Brown group, for example, one of the leading suppliers of forged and rolled alloy steel to the aero-engine makers, are very busy; delivery dates on some products are stretching into the middle of next year.

Several companies are going ahead with major expansion plans. For example, Doncasters Blenavon, the Daniel Doncaster subsidiary which is one of the leaders in the forging of ring components for gas turbines, recently announced a £3m expansion of its forging, machining and heat treatment facilities. This is to meet the requirements of the RB 211, the RB 199 and other high tech-

nology gas turbines now under development. Doncasters Blenavon's range covers nickel-base, titanium, aluminium alloys, stainless steel and other non-ferrous alloys. Another company in the group, Doncasters Monk Bridge, a leading producer of blade forgings, is investing in a new facility for the production of turbine and compressor discs.

Burnley Engineering, a Laird Group subsidiary which is an important supplier of fabricated assemblies to Rolls-Royce and other engine builders, is investing on a similar scale and taking on new employees to cope with the anticipated expansion of business. The equipment being ordered includes new heat treatment facilities, numerically controlled machining centres and electron beam welders—all major and expensive items of capital plant.

The gas turbine builders are particularly dependent on a reliable supply of precision forgings and castings. Cameron Iron Works, one of the leading American forgers based in Houston, built its factory in Livingston, Scotland, initially to make turbine discs, shafts and other components for the Olympus engine in the Concorde. This factory is now a major supplier of forgings for the RB 211. All these components are made from nickel-base super-alloys and include the largest pieces to be forged in these difficult alloys anywhere in the world. Cameron also makes a different type of forging, a large titanium alloy engine mounting bracket for the RB 211, as well as critical components for the Spey and other Rolls-Royce engines.

On the casting side AE Turbine Components (AETC), a subsidiary of Associated Engineering, is one of the principal suppliers of precision cast, fully machined compressor blades, turbine blades and nozzle guide vanes for the gas turbine industry. AETC probably has the largest integrated facility of this kind outside the

engine builders themselves and it has been a leader in the move away from wrought airfoil components towards precision casting.

An important competitor in the field of precision casting is Howmet Turbine Components, a subsidiary of Howmet in the U.S. which in turn is owned by the French metals group, Pechiney Ugine Kuhlmann. This company has manufacturing facilities in the UK (at Exeter) as well as in the U.S. and it recently acquired control of France's leading producer of investment castings.

Pechiney's involvement in the gas turbine business through Howmet Turbine Components illustrates the importance of the special metals which are required in many of the key components. Pechiney is a leading producer of aluminium and ferro-alloys and the largest fabricator of copper in Europe; it is also a major producer of stainless and other special steels.

With this background, forward integration into the fabrication of components from these metals is a natural development.

Similarly INCO, the world's largest nickel producer, has an important position in the gas turbine industry. One of its UK subsidiaries, Henry Wiggin, produces NIMONIC and other nickel alloys which are used extensively by the gas turbine builders and their component suppliers. One of its important UK customers is Daniel Doncaster, which itself became a subsidiary of INCO in 1973.

Recent investments at Wiggin's Hereford plant have included new vacuum induction and vacuum arc melting furnaces. Equipment has also been installed for the manufacture of powder-produced alloys. One such alloy, known as Alloy APK 1, has improved purity and homogeneity and has properties superior to alloys melted by conventional techniques. This type of development offers the prospect of gas turbines which can

operate at higher temperatures and higher efficiency.

In titanium UK-based gas turbine builders have been mainly dependent on ICI's plant on Teesside, which supplies titanium granules to IMI for conversion into billet and rod; the semi-finished metal is then supplied either to the gas turbine builder or to a designated sub-contractor for the manufacture of the finished component. The ICI plant has a limited future and proposals have been put forward for a new plant in which the National Enterprise Board, Rolls-Royce and IMI would be partners. The argument is that both for strategic and commercial reasons it would be unwise for the UK to make itself wholly dependent on imported titanium and that Government financial support is justified.

For most component suppliers, however, a prospective shortage of titanium is a less pressing problem than the need to keep up with demand. Investment to increase capacity is essential in many sectors of the business and the financial strain involved in large-scale re-

equipment is considerable.

There are of course a number of large companies in the industry which have the financial resources to cope with these strains. Quite apart from the big groups like INCO and Pechiney, the leading suppliers include some of the major engineering companies like Dowty, Lucas, Associated Engineering, GKN, Hawker Siddeley and IMI. But the smaller companies face special problems.

While their current level of profitability may be good, the business is thirsty for cash. Some of these companies may take the opportunity of the present surge in business to sell out to groups with a wider spread of interests. This certainly does not spell the end of the specialist sub-contractor or necessarily a reduction in competition but it may be that as technology continues to advance, the financial, technical and commercial risks of supplying components to the gas turbine industry will tend to become greater.

G.O.

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components for future RB-211s.

In the longer term there is now a growing belief in some sections of the aircraft manufacturing industry that airliners will not be able to depend for ever on continued use of fossil fuels, and that alternative fuel sources will have to be found. Lockheed-California Company of the U.S. is one of these, and has been working for some time on the development of hydrogen-fuelled airliners.

Intensive studies conducted by Mr. G. Daniel Brewer, the manager, hydrogen programmes for the company, indicate that the use of liquid hydrogen as an aircraft fuel could have many positive advantages, such as a reduced gross weight, reduced engine noise, substantially reduced engine pollution, equal safety with conventionally-fuelled airliners, longer engine life because of less maintenance, and lighter, less costly components. Moreover, hydrogen is comparatively easily produced from coal and/or water using any energy source. Because of all these advantages, Mr. Brewer believes that the outlook for the use of hydrogen as an aircraft fuel is bright.

But he accepts that much development must take place before commercial aircraft can be flown with liquid hydrogen, and that this development needs to be undertaken as an immediate, high-priority programme. Among the areas to be studied is that of developing and constructing the large-scale facilities for manufacturing and liquefying hydrogen, and for maintaining and fuelling aircraft with it at selected major air terminals.

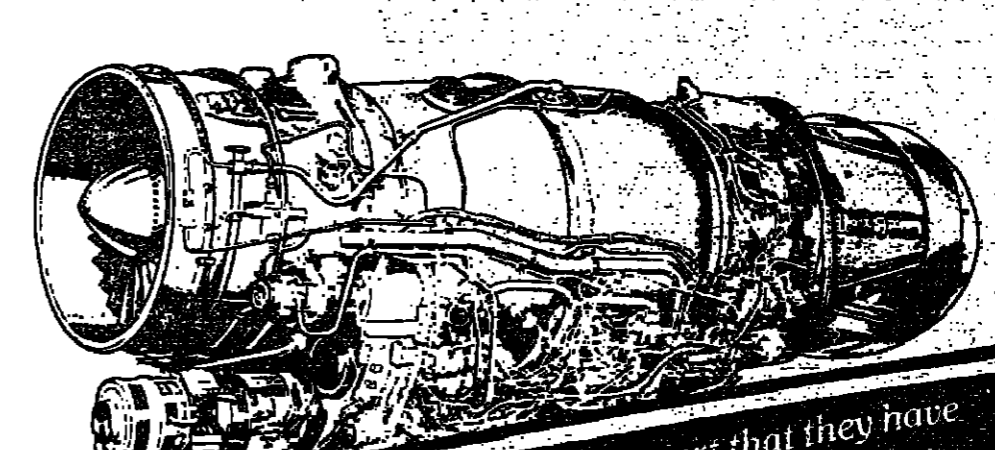
Lockheed, therefore, is proposing that an experimental airline be set up, under international government sponsorship, for a period of two years, probably in the 1980s. The airline would use four liquid hydrogen-fuelled wide-bodied aircraft, such as TriStars, to carry commercial cargo on a regularly scheduled basis between the U.S., Western Europe and the Middle East. Four major cities would be selected as principal operating terminals—Mr. Brewer suggests Pittsburgh, Pennsylvania; Frankfurt, Germany; Riyadh, Saudi Arabia, and Birmingham, England. These airports would be provided with facilities to service the aircraft with over 18 tonnes of liquid hydrogen per day. Each country would be free to use its own processes for the development and storage of the liquid hydrogen.

This programme, which would cost several hundred million dollars, would establish the technical feasibility and efficiency of advanced processes for manufacturing and liquefying hydrogen; provide experience in the use of this fuel; focus world attention on the advantages to be derived from using it; help to promote public confidence in the safety of large-scale hydrogen storage and handling, both on the ground and in the air; and help to overcome resistance

to change through the use of a new fuel in an established, mature industry.

Mr. Brewer estimates that the cost of building and modifying four TriStars for liquid hydrogen would be about \$470m. The engine development—converting existing wide-bodied jet engines to burn the different fuel—would be about \$58m, together with another \$36m for production of 12 engines and spares. Facilities for making and storing the liquid hydrogen in the U.S. would cost some \$85m, a total of \$647m. These are the costs to be borne by the U.S. Each of the four countries in which operating terminals are located would be expected to fund the development of their own facilities for the experiment, estimated at about \$100m each.

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MANAGEMENT

A case of back to first principles

How Rolls-Royce is sharing a secret of Japanese success

BY JASON CRISP

IT HAS probably not escaped your notice that 10 or 15 years ago most Japanese goods were viewed as little more than cheap Oriental tat both of dubious quality and reliability, yet today almost the exact reverse is true.

In a remarkably short time the reputation of Japanese goods has been transformed—increasingly it is the Japanese who are setting the standards of quality and reliability, in markets around the world.

Nor, probably, has it escaped your notice that it was not so long ago that "Made in Britain" was a company's bottomed guarantee of quality: now, you want to know just who made it in Britain.

Japan there are around 1m QC circles in which there are about 10m workers, according to Professor Kaoru Ishikawa, president of Musashi Institute of Technology and chief advocate of QC circles.

The QC circle is the prime agent for quality control and its role is continuous. It is in direct contrast with practice in the UK and other Western countries where quality control is in the hands of the specialist quality control engineer.

Considerable claims are made for QC circles. David Hutchins, a management consultant who hopes to evangelise the concept in this country, says they are not only very effective in improving quality but also result in greater involvement and commitment by the workforce.

Ishikawa and Hutchins believe that many of the problems of industry in the West lie with our continuing use of the Taylor principles of "scientific management," which were established by Frederick Taylor, an American, in 1910.

Literate

Their basic criticism of scientific management is that it treats workers as the extension of their machines and downgrades the foreman in favour of a number of specialist functions. And, they add, it is particularly inapplicable where the workforce is skilled and literate.

Professor Ishikawa recently wrote: "If Japanese operators with advanced knowledge of both technology and culture were obliged to work under the Taylor system without encouragement of voluntary will and creative initiative, they would lose: much of their interest in work itself.

The natural outcome would be: labour efficiency would decline markedly; there would be no will to make good products in the labour force; absenteeism would increase;

labour turnover would increase critically."

Britain, too, has an educated workforce and a much longer tradition of skills than Japan, yet how many companies facing the symptoms described above believe they are the "natural outcome" of the way they are managed?

There is, of course, considerable room for scepticism as to whether something which has been successful in Japan could also be so in the West. After all, look at the culture difference. For a start the Japanese approach to human relations is based on harmony. And in Japan, a homogenous culture anyway, there is a much stronger and paternalistic relationship between company and worker; in Britain it is largely a contractual relationship.

So QC circles could probably be put on one side as a mildly interesting idea which is rather unsuitable were it not for a successful experiment being conducted in Rolls-Royce in Britain.

What has been introduced at Rolls-Royce Aero division in Derby is not exactly QC circles but something very similar, individually developed and all the more interesting for having been designed for the British culture. Rolls-Royce's QC groups, as it prefers to call them, have been devised by Jim Rooney, the quality engineering manager at Derby.

The linchpin of the QC group at Rolls-Royce—as indeed it is in the Japanese QC circles—is the foreman or shop floor supervisor; it is he who chooses the group and he who leads it. But the actual initial formation of the group is as important: "I don't want either the foreman to feel shanghaied nor the operators to feel as if they have been dragged in by the scruff of their necks," says Rooney.

Two particular factors took Rooney along the road towards introducing QC groups. One was the gradual reduction of

skilled workers; the other, and more important, was the feeling that the new workers did not identify with Royce's, as it is known in Derby, like they did in "the good old days." He recognised that there was, all the same, a willingness to help with problem solving on the shopfloor and that what was needed was to give the workers the means and the tools by which they could help.

A typical QC group at Rolls-Royce consists of between eight and 10 people and comprises the foreman, production engineer, quality engineer, operators, inspectors and setters, all from the same workshop. Potential members of a QC group are simply told that one is being formed and are invited to attend, which they always do. And no one has yet asked Rooney: "What's in it for me?"

First the group is taught some basic statistical analysis and problem solving techniques; this is done over a period of six weeks by a tutor from a local college. They are taught how to use such tools as the Pareto chart, statistical sampling, cause and effect diagrams and pre-control charts. And at the same time they learn how to work together as a group.

Once trained, the group analyses where its single biggest problem is in terms of quality. It then attacks the problem as a specific project. The first projects tend to be those of control, such as reducing operator controllable defects, but as the group gets more experienced it may be dealing with parts of the company outside its immediate area.

Rooney cites one instance where a QC group isolated a particular design problem and made a full presentation of the problem to the designer who, says Rooney, was tremendously impressed. Jointly they were able to solve the difficulty. Result: the design function becomes closer to production and better understands its problems.

Some groups have begun to tackle problems that go beyond that of quality control. One, for instance, has found ways to improve tool-setting times.

Savings from projects vary greatly: one saved £70,000, another £1,600. Compared with Rolls-Royce's turnover these are of course very small but, as Rooney points out, in quality it is a matter of reducing losses of 1 per cent to three-quarters of 1 per cent.

There are now 23 groups at Derby; the target is 35 by the end of the year and they are now also being introduced at three other Rolls-Royce factories and even among some of its suppliers.

Jim Rooney's groups do differ from Japanese QC circles. Whereas in Japan the circles have only subordinates to the foreman, reflecting the strong vertical structure within companies, the QC groups have a more lateral emphasis in that they include the relevant specialists essential to quality control as practised in the U.K.

The claims for QC groups at Rolls-Royce will make them appear seductive to other companies. Where they have been introduced they have achieved sought-after improvements in quality and the subsequent savings in costs. But added to that has been the much greater enthusiasm and identification with the company, claims Rooney. The groups have been welcomed by management and unions alike and some parts of the workforce have been asking for QC groups to be set up in their area as soon as possible.

An instant medicine? No, because these groups have been introduced slowly and with meticulous care by Rooney, who has carefully won the confidence of production managers, foremen and workforce rather than imposing it ex cathedra.

Jim Rooney and Professor Ishikawa will be speaking at a conference on QC circles in London, September 10-12. Details from Executive, telephone High Wycombe 33171.

David Freud compares executive perks world-wide and finds UK companies top the league Britain still way beyond the fringe

BRITISH COMPANIES appear to lead the developed world in the provision of fringe benefits to employees.

The most widespread benefit is the company car, which the Inland Revenue in a recent consultative paper estimated to make up 80 per cent of total benefits. Some 70 per cent of all car sales are now to companies.

The Revenue's new proposals to increase income tax on employees using company cars for private motoring represent an attempt to bring the UK more into line with international practice on benefits.

In most other developed countries, employees are taxed directly on the benefit of the private mileage in a company car. This is usually done by establishing the proportion of private to total mileage and assessing the benefit as this proportion of the overall standing charge and running cost of the car.

This approach was used in the UK up to 1976. By then, however, the number of company cars was growing so fast that the Government introduced a standard scale of benefit for administrative simplicity.

Company cars

The Government believes a reduction in the present tax advantages in the provision of company cars could bring their numbers down closer to those in other countries. Comparative figures compiled by the research organisation Imbucon show that in the UK about 80 per cent of senior management—including chief executives, deputies and heads of function—use company cars.

In Belgium and the Netherlands the comparable figure is about 50 per cent, while in France it is between 40 and 45 per cent.

Lower down the scale about 35 per cent of senior managers in Italy and France had company cars, and 30 per cent in Switzerland and Spain.

By comparison, there are few company cars in the U.S., Canada, Australia and the Scandinavian countries. Under U.S. legislation the fair market value of the benefit is added onto salaries for the purposes of deducting tax.

Australia also uses this system, although in 1974 it introduced a "standby value" similar to the UK scale of benefit for taxing company cars. However, this legislation was repealed before it came into effect.

Ireland also tried using special rules to make it administratively more simple to tax the value of the benefit. For two financial years—1976/77 and 1977/78—those using company cars were taxed on a scale benefit of £300 a year or 15 per cent of the car's purchase price, whichever was the greater.

In Canada the private use of company cars is charged on a sliding scale, rising from a minimum of 12 per cent of its capital cost.

In Australia less expensive cars are assessed at an annual rate of 12 per cent of the capital cost, while the more expensive ones are assessed at a swingeing 24 per cent.

In West Germany and France the private mileage proportion is used. In South Africa the position is in a state of flux. The Inland Revenue goes to employers for an estimate of the annual benefit. This is accepted at the lower levels and becomes a matter of negotiation above these.

However, the Standing Commission on Taxation has just published a paper recommending widespread changes—for the treatment of company cars as well as other fringe benefits.

Among the benefits dealt with are cheap housing loans, and bursaries for students. The Commission's paper comes nine years after the Fransen Commission recommendations on curbing fringe benefits, on which so far the Government has failed to act.

Quite apart from company

cars, the UK also tends to make more use of other types of fringe benefit. Luncheon vouchers are tax-free in Britain, as are "representative" occupations, or the benefit of houses tied to a particular job. This is close to the position in the U.S., where meals taken on the business of employers are not taxable, as well as the position of representative occupations.

Germany allows luncheon vouchers and untaxed beer and cigarettes for workers in those specific industries, in much the same way as UK miners are allowed tax-free coal. But a stricter attitude is taken in France, where meals and representative occupations are fully taxed.

More important than these is the area of pensions and health and life insurance. Company contribution to life insurance is popular in several European countries, notably the UK, Belgium, France and Spain.

Generous

The usual practice is for employer's costs to be allowed as part of expenditure and for employee's contributions to be removed from taxable income. Major complications to the tax treatment in Germany means the practice is rare.

European state pension schemes tend to be much more generous than the UK state scheme, and accordingly private pension arrangements are less usual.

However, there is wide use of health insurance. Private insurance is popular in the Netherlands and the UK, while in France companies often arrange to cover the 20 per cent of health costs payable by the individual as opposed to the state. But health schemes are uncommon in Germany, Spain, Switzerland and Italy.

The U.S. lags behind Europe in the company provision of these pension and insurance benefits, although there has been a rapid increase in recent years. Americans tend to place more reliance on incentive schemes than perks.

Technical News

EDITED BY ARTHUR BENNETT AND TED SCHOETERS

Makes it easier to deliver the goods

A LOAD which is more easily delivered to retail customers, and cost savings of some £30,000 a year on materials handling, follows the introduction of stretch wrapping combined with a conveyor system and the use of pallet loading trays at the Swinton factory of Hotpoint.

Morgy Richards domestic appliances, such as electric toasters and irons are made there.

Prior to despatch to shops and warehouses, the irons are shrink wrapped into batches of six and then made up into pallet loads containing eight collated packs or batches while the toasters are packed in cardboard containers or outer which are made up into pallet loads of four outer.

Both irons and toasters are then wrapped on 22 sq in cardboard trays by Timperley Engineering's "72000 Rotarap stretch wrapper."

Before the introduction of the new system, Hotpoint used wooden pallets, with the contents protected within a polythene hood. This was shrunk to fit in an oven, the pallets passing through the oven on a conveyor, before being moved around by fork lift truck.

After the evaluation of a number of systems it was decided to install a conveyor which would carry products

right through the wrapping processes and into the live storage area from where they could then be transferred by fork lift for despatch. The system chosen was the semi-automatic Econorol, manufactured by Conveyor Manufacturers of Wednesbury and supplied and installed by P and R Mechanical Handling of Caerphilly.

At the same time it was decided to eliminate the energy-intensive second shrink-wrapping phase as oven running costs were something like £50 a week. This was achieved by the Rotarap, supplied with roller conveyors fixed to the turntable and aligning with the Econorol infeed and outfeed conveyors.

The stretch wrapper has fully automatic, programmable control which adjusts the amount of wrapping to the height of the load. Consequently, polythene stretch film is wound round with predetermined overlaps and so that the load is well secured. The film is tensioned by the Rotarap's precise tensioning system which ensures the maximum degree of stretch, reducing film usage and achieving a firm binding action.

Timperley Engineering, Park Road, Timperley, Altrincham, Cheshire, WA14 5QJ.

Less paperwork on the farm

SMALLEST FARM which is using the Hewlett-Packard based Farmfax automated herd and stable control system covers 150 acres supporting a 90-cow dairy herd.

Developers of the system, who are the first to admit that it is not the only one on offer to the farming community, say that HP equipment was selected primarily because of its extremely high reliability record coupled with an excellent support network in the UK, Europe and elsewhere.

Software packages developed for Farmfax are unique to Britain and there is growing interest in them and the HP systems on which they run from Europe, the Soviet Union and Latin America.

One of the greatest boons such a package offers the farmer, farm manager or accountant is a very sharp reduction in the amount of paperwork which has to be handled. Of equal importance is the fact that once the basic farm data has been entered into memory it can be manipulated in many ways to throw up trends and immediate historical details that would be either impossible or extremely time-consuming and it is uneconomic to do by manual methods.

This can mean, in dairy farming for instance, all the difference between profitable running and a loss since in the design of the Farmfax is a "prompt" list of actions to be taken that are of prime importance in maintaining optimum yield. With this goes a listing of cows where yield has deviated outside set limits, calving times, etc.

Will spread it widely

DESIGNED SPECIFICALLY for use with the Mercedes-Benz tractor unit, is a demountable sprayer unit from L. and H. Fertilisers, Wigford House, Brayford Pool, Lincoln (0522 37561).

Called the M.B. Trac 1500, it is fitted with electric spray control and hydraulically-operated height adjustment and boom folding.

Heat tests were needed

SHARETREE of Stroud, designer and builder of the Parametron range of electronic instruments and the Declan range of burn-in and life-test equipment, has introduced a burn-in and heat-soak room system for large equipment.

The room is built up from modular panels and may be quickly assembled and subsequently dismantled, if necessary, in any suitably enclosed area with access to mains power.

Principal advantages are those of being able to create large volumes of temperature-controlled space from standard components with considerable flexibility regarding future expansion or re-setting. In some applications it would be possible to erect the room on an as required basis, as the modular panels are assembled with quick-release catches.

Keeps heat in building

ANNUAL savings of 5,800 thermes—say around £6,000—are claimed by Dowry Mining Equipment as a direct result of insulating the roof of their 42,000 sq ft No. 3 factory near Tewkesbury. The entire project was completed without disruption to factory operations.

During an energy survey carried out by Dowry works engineers, it was decided that a major insulation programme could have significant benefits. Firstly, it would have an acceptable payback period because the output of one boiler was being wasted through the unlined roof of the building. Secondly, during a period of expansion, the energy thus saved could be used as process heating for a new electro-plating complex, avoiding high capital outlay for new boiler plant and releasing space for laboratory and office expansion.

No. 3 factory is a former hangar of 42,000 square feet, which has an unlined, pitched asbestos roof.

Boddy Moir (Roofs and Ceilings) was called in to discuss and advise on the materials and methods to be used. The final choice was Fibrochem Aeroliner, white colour-coated, foil backed insulating board as an under purlin roof lining. This was chosen because of its high insulation properties coupled with appearance and lightweight construction. Board was supplied in imperial sizes to match the building and minimise wastage. It gives Class 1 spread of flame ratings on both sides.

Plaschem, Morris Street, Dumers Lane, Redcliffe, Manchester. 061-766 9111.

Improves pump life

IMPROVED lubricating characteristics and better pump life are claimed to result from the use of a new fire-resistant hydraulic fluid, introduced by Isaac Bentley and Co., Naylor Street, Liverpool (01 250 2530).

Particular applications for Erilon 410 are in the pressure die-casting steel and plastics, but it is also said to be suitable for furnace operating systems and extruding presses.

Will withstand typhoons

THE NEW Tsing Yi ship repair yard of Hong Kong United Dockyards, in Hoang Kong harbour, is equipped with floating docks as opposed to the graving docks operating in their Kowloon Yard. As Hong Kong is subjected to the effects of typhoons for part of the year, HUD considered it vital to check that the floating docks would remain safe and operable during typhoon conditions.

Consistently advisory and projects group of Lloyds Register's Hull Structures Department was requested to investigate the probable behaviour of its floating dock "Whampoa" (lifting capacity 20,000 tons) in simulated typhoon conditions.

It is believed that this analysis represents the most complete investigation so far undertaken regarding the behaviour of a floating dock with the interactive effects of the docked ship in simulated weather conditions. Typhoon conditions defined by Hong Kong United Dockyard and the builders of the dock, Sasebo H.I. of Japan, were specified as winds of 130 mph. The dock itself is 220 metres long, 45.2 metres in beam, and 16 metres deep. It is maintained in position by securing chains anchored to the seabed. The lightweight of the dock is 10,522 tons and its lifting capacity 20,000 tons.

Chip needs less power

A NEW high speed 4096-bit static random access memory has been designed and produced by Intel. The 2148 employs Intel's high speed MOS technology and is available with three different access times, 55ns, 70ns and 85ns.

Power consumption is a maximum of 125mA in the active mode, and only 30mA in the automatic standby mode. The standby mode is entered automatically when a device is not being accessed. Power-up is achieved without reducing RAM operating speed, or reducing system data throughput and does not require clocking or complex power-switching circuitry. Since most of the

QUEST DATAPAD

Enables your computer to accept and validate hand-written data as it is written. Quest Automation Ltd Ferndown (Dorset) BA15 1D

Micro unit discounts

INTEL INTELLEC Series II microcomputer development systems are available to educational and non-profit-making research organisations from Rapid Recall at 15 per cent below list price. Organisations that qualify for this special offer include Universities, Colleges, Schools and Government-funded research establishments who will use the equipment to support their training programme or for basic research work. Rapid Recall is also offering full service contracts at 15 per cent below list.

Organisations that purchase either an Intellec 221 or 231 and one software package (such as an assembler, PL/M, FORTRAN, or COBOL) at the reduced price will also qualify for a 15 per cent price reduction on further software packages, peripherals, in-circuit emulators, SDK kits, PROMPT units and system test consoles.

For an organisation installing a complete microprocessor development laboratory, the 15 per cent discount will represent a great deal of money. Rapid Recall, 8, Soho Mills, Woodburn Industrial Park, Woodburn Green, Bucks. Bourne End MK285 2ABE1.

Line set up in a day

LEKTROKIT IS offering a complete plated through hole system allowing many companies, for the first time, to have prototype and batch production quantities of printed circuit boards available the same day.

Equipment can be provided for the preparation, plating and electroless copper plating, pattern generation and electroplating with copper and lead tin of PCB's to give a finished board in about 14 hours. The equipment includes soak tanks, heated tanks, wash tanks, deionized water wash, electroless copper bath, board drier,

IN THE OFFICE Microfilm recorder

AUTOMATIC microfilm recorder equipment by Bell and Howell is a compact desk-top camera, for use in banks and related application areas. A built-in endorsing system enables it to endorse, cancel or mark documents. Microprocessor logic allows the machine to film, count, index and even monitor its own performance. Simple film cartridge unit and freedom to remove any length of film for processing, as well as for partially used film cartridges to be set aside and used when required, make for speed and economy. Bell and Howell, 33, Woodthorpe Road, Ashford, Middx.

# LOMBARD Basil and the perks crisis

BY JOHN CHERINGTON

Dear Uncle Tom,  
A belated letter to thank you for the grouse which have been much appreciated. How fortunate you are to have established your residence abroad and can be entertained by your old company as a foreigner and so make the whole grouse exercise, if not viable, at least tax deductible for them. In fact foreigners are now much sought after as guests for all sorts of enterprises because, as you know, it is quite legitimate for British nationals to be entertained as well.

But I wonder for how much longer I have been much disturbed by the latest Inland Revenue consultative document about the taxation of perks which at the moment is concerned with cars, but undoubtedly grouse moors and yachts will follow.

Of course as directors of my company Rebecca and I each have a car to which we are charged a small sum as annual value on which we are taxed. I have also a young team of departmental managers and salesmen each earning £8,490 a year. Not a very high salary, I grant you, but they have in addition a car with free petrol, EUPA subscriptions for their families, schooling at the fee paying schools for their children and so on.

In addition my lower ranking operatives all are subsidised canteen meals, car allowances to get to work and a number of other little things which according to my agreement with the shop stewards amount to about £10 per week per man.

As soon as the news broke my executives called me into a meeting and their spokesman laid it down that if they had to pay tax at the full rate of their cars they would expect me to increase their salaries to the extent that they could still keep their cars and not be out of pocket.

Supplying the cars at present costs me about £1,500 a year each and if I have to meet their claim I calculate that it will cost my company an additional £500 a year for each executive to meet the car claim alone. In addition the spokesman said that he would be keeping the position of the other benefits in kind under constant review. He was relatively restrained and polite as he knew very well that I simply had to agree. The business depends entirely on

their efforts and we have just had a few successes in the home market.

Bill Harcourt, the shop steward, was much more brutal. If anything were to happen to his members' benefits they would need financial compensation or else the lads would take action and you know what that means.

If this attack materialises, and Mrs. T. and her friends are in for another four years and eight months, the total extra cost of supplying cash instead of benefits in kind would be £30,000 a year, a figure which on present form I simply cannot find and meet my other commitments. I have sold Rebecca's TR 7 and told her that as she is pregnant at last and expecting twins walking will get her a slim for pram pushing and housework. The office cleaner will also no longer be able to do the housework. I am at my wits' end. What do you suggest? Your affectionate nephew, Basil.

## Tax holiday

Yacht Delysac Cannes.  
I simply don't know how to advise you except to move your whole enterprise to Ireland where I understand foreign investors can claim a ten year (or is it 20 year?) tax holiday. But in truth your situation is no more than a microcosm of what the whole of British industry could suffer should this scheme go through. According to calculations made by the Revenue the actual loss to tax from benefits in kind is of the order of £360m at least and paying increased salaries to meet this would cost an enormous sum.

The only solution which quickly comes to mind is to re-arrange your affairs so that all duties are performed by subcontractors who would have to make all their own tax arrangements. If this change became universal it would create such a multiplicity of separate enterprises that the Revenue would be forced to yield.

Yours affectionately, Tom

IN THIS summer of the vanishing holidaymaker, Great Yarmouth claims it has not had a bad time. Despite the signs which appear more frequently than elsewhere proclaiming "no petrol" or "regulars only," the number of holidaymakers in the town this week, as the end of the high season approaches, has been little different from last year.

The bingo parlours on Marine Parade and North Drive are doing good business, as are the chip shops, and gift shops. Dick Emery is at the Wellington Pier Pavilion and Bernie Winters at the Windmill. Jimmy Chipperfield's circus is at the Hippodrome and there are any number of other shows to attract the holidaymaker when he and his family have come off beaches as good as any to be found in Europe—15 miles of perfect, clean sands.

That Great Yarmouth has been able to buck the trend hitting much of the rest of the country is probably due to its being, quite unashamedly, a British resort. There are no bureaux de change and no foreigners. Its appeal is to those who do not want, or cannot afford, to take the family to the Costa.

But what it lacks in international sophistication it makes up in success. It is second only to Blackpool as a holiday town; perhaps 1m people a year stay

for a week or more, leaving behind, at a conservative estimate, £50m.

If Yarmouth is traditional, it is also changing. The crowds which come in their thousands in high season—probably 75,000 a week this month and more than doubling the population—are making different demands. No longer do they flock to the private hotels, as the guest houses and B and B places of yesteryear are now known, in such large numbers. They want self-catering accommodation to keep costs down.

So, some of the seaside landladies have turned to flatlets. But the big boom has been in caravan holidays, and companies such as Ladbroke and Pontin (now part of the Coral group) have not been slow to meet the need. Ladbroke has 1,600 caravans on one of its four sites and at Vauxhall Holiday Park there are 1,200. Pontin has two big camps and there are plenty of smaller ones up and down the coast.

This development has allowed Great Yarmouth to hold its own, though it would not claim to have done more than that. During the 'seventies the "take" from the holiday industry has been fairly static after a period of rapid expansion and this fitness has led to some agitation for the borough to become more industrialised,

to provide work all round the year.

As in most seaside towns unemployment rises sharply after the last shutters have been pulled down and the deckchairs stacked, but the realists argue it would take a lot of industry to generate £50m a year for the town, even if it could be found.

What Great Yarmouth has also done is to spread the season. It has become very popular in May and September with groups of senior citizens which have helped considerably to spread a little more jam. The town's main attraction to older people, unlike Scarborough or Bournemouth, is that it is absolutely flat with no awkward hills to be negotiated.

To keep abreast of the times, the town has just embarked on a £5m Marina Centre to take the place of an open-air swimming pool and theatre on the front. Since the council does not have borrowing powers anywhere near that sum, it went to the NCB's pension fund for the capital, the fund took a 25-year lease on the site and then did a lease-back to the council. The rent which the council pays is linked to the retail price index.

The centre will be managed for the council by Trust Houses Forte, a similar arrangement to that between the company and Douglas on the Isle of Man for Summerland. THF is well established in Yarmouth, operat-

ing a pier and a couple of cinemas, and is paid a fee, equivalent to 5 per cent of turnover, and a percentage of the net profit.

The marina centre will have not only the usual bars, restaurants, dance halls and leisure pool, but also facilities for indoor sports—squash, netball, archery, football and bowls—which will be available all the year for the town's residents. The marina is expected to open in the spring of 1981.

In the next fortnight, though, the main throng of holidaymakers will have gone and by the middle of October there will be few old age pensioners left. Then Great Yarmouth will have to exist on its own resources until the spring, but again. Unfortunately it has little appeal for the second-holiday-maker or hotels for the people taking winter breaks—only two of them rate three-star category.

At one time, there was the fishing industry. Yarmouth was, after Aberdeen, the country's leading herring port. In its Edwardian heyday over 1,100 vessels moored in the Yarre. As recently as the late 1950s there were more than 200 by the mid-1980s they will all gone, victims of vicious over-fishing by short-sighted European nations and a three-mile fishing limit.

Yarmouth was lucky in one respect. As fishing disappeared, North Sea oil and gas replaced

it almost immediately. The port, which has good water, sits opposite the southern North Sea gas fields and if it eventually lost out to Aberdeen and Dundee for North Sea oil it still managed to hold sufficient of the trade to keep 3,000 to 4,000 people in work.

The coming of oil and gas, however, masked the underlying economic problems, for which the town is now paying. It has been difficult to clear outdated buildings from the quayside because leases were quickly snapped up and although the port—run by harbour commissioners—has introduced both a roll-on, roll-off service to Holland and a promising service to Nigeria it is unable to find the land to produce a container terminal. At one point, between the oil storage tanks, the power station and the sea, sits a caravan park.

Just as good roads leading into the town, Yarmouth could tap more trade from the West Midlands and Merseyside if only the roads were better. What it desperately wants is a good link between the M1 and the A1, and then improvements on the road across from the A1.

What the town also lacks is more manufacturing industry. In 1971, 36 per cent of the workforce was in manufacturing, a proportion which had dropped to 27.5 per cent

by 1976 and is now probably under 25 per cent. This drop is within a workforce which has remained fairly stable at around 34,000.

The fall has been accentuated by a number of takeovers of local firms by nationals which have, in time, then closed the local operations. Spillers sacked 800; Bird's Eye ran its workforce down from over 5,000 to under 2,000 (with probably another 500 to go); and Jewson will shut in October, putting out of work at least 80. All this has pitched the town's unemployment to over 8 per cent, about double the Ipswich rate and considerably more than Lowestoft or Norwich.

Two attempts to get assisted areas status were turned down by the previous Government and will certainly not be entertained by Sir Keith Joseph, so the borough must do more for itself, a point which an inherently conservative (not to say Conservative) council now accepts with the decision to go ahead and designate an industrial estate.

The narrow base of industry is at last beginning to concern the council. The holidaymakers at least are unlikely to be aware of these problems.

## Useful pointers for next season

SEVERAL promising two-year-olds are among the runners in today's Waterford Candelabra Stakes for fillies. The race, which has been transferred from Goodwood to Ascot, could well provide some useful pointers to next season.

The seven-furlong event looks set to be run on near-perfect ground after heavy showers in the Ascot area. Quick as Light-

foiled a major gamble on Live Ammo, with Moorestyle heading the remaining 20 home. Live Ammo has since franked the form with comfortable victory in respectable company.

Pat Eddery's mount, whose backward appearance was reflected in her price there (and, incidentally, a tote dividend of 30 to 1) will be ideally suited to today's extended trip.

Blaze of Glory is another filly bred in the purple. A full sister to the 1,000 Guineas and French Oaks winner, Highclear, she is also a full sister to Light O'Battle and Light Duty, and a half-sister to several other winners. At Newbury on Friday, Blaze of Glory might well have made her presence felt in the closing stages of a Maiden event, but for being the subject of interference a quarter of a mile out.

With the benefit of that run behind her, Blaze of Glory can take advantage of the 5 lb she receives from the Arrand filly.

A second possible winner for the Dunlop and Eddery is Liberated, who needs only reproduce the form which saw him chasing home Tahitian King at three lengths in Goodwood's Surplice Stakes to take all the beating in the Counters Gate Stakes. I anticipate the chief danger to Liberated being Sarus, whose stable returned to a little of its old form with Base Camp's narrow victory at Brighton on Wednesday.

## RACING

BY DOMINIC WIGAN

ning and Blaze of Glory are the runners which interest me. Quick as Lightning is a beautifully-bred juvenile—a bay filly by Buckpasser out of the Bold Ruler mare, Clear Ceiling, who is a full sister to What a Pleasure. She made no mistake at Newmarket on her debut. Running on strongly in the closing stages of the six-furlong Fergusson Maiden Stakes, John Dunlop's filly, a 16-to-1 chance,

West (Plymouth) The Individualists: West (Bristol) The Producers.

ASCOT  
1.45—Lady Ember  
2.15—Little Newmarket  
2.45—Boys Division\*\*  
3.15—Blaze of Glory\*\*\*  
3.45—Crimson Satin  
4.15—Liberated  
NEWMARKET  
2.30—Mutual Interest  
3.00—Hinda Fux  
3.30—Marlice  
4.00—Lottie Lehmann  
4.30—Decorative\*  
5.00—Another Picture

## EUROBONDS

The Association of International Bond Dealers

Quotations and Yields appears monthly in the Financial Times. It will be published in an eight-page format on the following dates in the remainder of 1979:

September 10  
October 15  
November 12  
December 10

There is a limited amount of advertising space available each month; if your company is interested in taking advantage of this offer please contact:

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## ENTERTAINMENT GUIDE

### OPERA & BALLET

COLISEUM: Verdi's "Il Trovatore" 8.00. Mat. Wed. 5.00. English National Opera. Tonight: "The Barber of Seville" 8.00. Mat. Wed. 5.00. Royal Festival Hall: 8.30. Mat. Wed. 5.00. Sadler's Wells Theatre: 8.00. Mat. Wed. 5.00. Sadler's Wells Theatre: 8.00. Mat. Wed. 5.00.

### THEATRES

AMBASSADORS: "The Firm" 8.00. Mat. Wed. 5.00. Apollo Theatre: "The Firm" 8.00. Mat. Wed. 5.00. Arts Theatre: "The Firm" 8.00. Mat. Wed. 5.00. Lyric Theatre: "The Firm" 8.00. Mat. Wed. 5.00.

### CINEMAS

AMBASSADORS: "The Firm" 8.00. Mat. Wed. 5.00. Apollo Theatre: "The Firm" 8.00. Mat. Wed. 5.00. Arts Theatre: "The Firm" 8.00. Mat. Wed. 5.00. Lyric Theatre: "The Firm" 8.00. Mat. Wed. 5.00.

BBC 1  
6.40-7.55 am Open University (Ultra high frequency only). 9.50 Magic Roundabout. 9.55 Jackanory. 10.10 Don and Pete. 10.15 Hong Kong Phooey. 10.35 Take Hart. 12.45 pm Pawb Yn El Fro. 1.15 News. 1.30 How Do You Do? 2.00 Show Jumping: The Embassy Derby Trial. 4.15 Regional News for England

## F.T. CROSSWORD PUZZLE No. 4056

1 2 3 4 5 6 7 8  
9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

## ACROSS

- 1 Feeling is gone from trigger (3, 3)
- 5 Copper on board newsmen found obnoxious (6)
- 9 Slick a call for silence on factory (3, 5)
- 10 Hope to drive snake to anger (6)
- 12 Hackneyed description of harvest field (5)
- 13 Made known how I tamed it in a new way (9)
- 14 Fireman from the Potteries? (6)
- 16 Bridge or some other game (7)
- 19 Basic part of resistance to electric appliances (7)
- 21 Eastern religious adherent found in average diocese (6)
- 23 Pork for West-countrymen (4, 5)
- 25 Has returned to one second-grade gentleman in India (5)
- 26 Put out new production (6)
- 27 Big fall means trouble in sight (8)
- 28 Precise time (6)
- 29 Got a rite for a parrot (8)

## DOWN

- 1 The roof of that chalet is partly straw (6)
- 2 Lady with the Lamp showing in cinema (9)
- 3 The answer is by no means plain... (5)
- 4 ... and even less plain to this connoisseur (7)
- 6 Bear up in a small way (4, 5)
- 7 Expedient to move (5)
- 8 Not looking forward to taking fourth class to southern town (8)
- 11 Prevent a lot of money turning up (4)
- 13 Look after noble scores (4, 5)
- 14 Kind of surgery requiring frankness (4, 5)
- 18 Recent appointment expected to make sweeping changes (3, 5)
- 20 Transport using rail and road (4)
- 21 Stamp obtainable after time (7)
- 22 Died on the Queen Elizabeth by the way (6)
- 24 Giant acquires sunburn without it (5)
- 25 Way to welcome staff (5)

Solution to Puzzle No. 4055  
1 2 3 4 5 6 7 8  
9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

## Radio Wavelengths

- 1 105.5kHz/285m 1089kHz/275m
- 2 693kHz/433m 808kHz/370m & 88.91MHz stereo
- 3 1215kHz/247m 1458kHz/206m & 94.3MHz
- 4 200kHz/1500m & 92.5MHz

BBC Radio London: 1458kHz, 206m & 94.3MHz  
Capital Radio: 1548kHz, 194m & 95.8MHz  
London Broadcasting: 1515kHz, 227m & 97.3MHz

## RADIO 1

(S) Stereophonic broadcast  
5.00 am As Radio 2. 6.00 Andy Peters. 6.30 Simon Bates. 7.00 Radio 1 Roadshow. 7.30 News. 7.45 Paul Burnett. 8.00 Tony Blackburn. 8.10 News. 8.15 Roundabout. 8.30 Mike Heat. 8.50 Newsbeat. 9.00 The Friday Rock Show (S). 12.00 News. am As Radio 2.

## RADIO 2

5.00 am News Summary. 5.03 Derek Hobson (S). 7.32 Terry Wogan (S). 10.03 Jimmy Young (S). 12.15 pm Wogan's Walk. 1.20 pm News. 1.30 Open House from Edinburgh (S). 1.45 David Hamilton (S). 4.15 Much More Music (S). 5.00 News. 5.25 Wagoners' Walk. 5.30 Don Durbridge (S). 5.45 Sports Desk. 7.02 Merton in His Diary (S). 7.30 Sports Desk. 7.33 Fiesta De Dorita (S). 8.02 Johnny Gregory conducts the BBC Concert Orchestra (S). 8.15 News. 8.30 Music Night. 8.35 Sports Desk. 10.02 The MacLeod and Jim Barrie at the Radio 2 Ballroom. 11.02 Brian Matthew with Round Midnight, including 12.00 News. 12.05 am You and the Music (S).

## RADIO 3

10.55 am Weather. 7.00 News. 7.05 Chorus Concert. part 1. 8.00 News. 8.05 Concert. part 1. 9.00 News. 9.05 This Week's Composer Handel. 9.10 Northern Chamber Orchestra (S). 11.00 Edinburgh International Festival 1979 piano recital, part 1 (S). 11.05 News Comment. 11.52 Radio 2 Ballroom. 11.52 Brian Matthew with Round Midnight, including 12.00 News. 12.05 am You and the Music (S).

## RADIO 4

5.00 am News Briefing. 5.10 Farming Today. 6.25 Shipping forecast. 6.30 Today. Including 6.35 Prayer for the World. 7.00. 8.00 Today's News. 7.30. 8.30 News headlines. 7.45 Thought for the Day. 8.05 Theatre Start. 9.00 News. 9.05 From Our Own Correspondent. 12.00 News. 12.05 Morning Show. 11.00 Down Our Way. 11.45 Listen With Mother. 12.00 News. 12.15 You and Yours. 12.27 The Enchanting World of Hinge and Bracket (S). 12.35 Weather programme news. 1.00 The World at One. 1.40 The Archers. 1.55 Shipping forecast. 2.00 News. 2.02 Woman's Hour. 3.00 News. 3.05 Afternoon Theatre. 4.05 Fair Game. 4.35 Story Time. 5.00 PM. News. 5.05 Shipping forecast. 5.55 Weather programme news. 6.00 News. 6.30 Going Places. 7.00 News. 7.05 The World at One. 7.30 Pick of the Week (S). 8.10 Profile. 8.20 When Men and Mountains Meet (S). 8.15 News. 8.30 News. 8.30 Kaleidoscope. 8.55 Weather. 10.00 The World Tonight. 10.30 Adrift. 11.00 News. 11.15 The Financial World. 11.45. 11.30 Travels of a Gentleman. 11.45. 11.30 Travels of a Gentleman. 12.00 News.

## BBC Radio London

5.00 am As Radio 2. 6.30 Rush Hour. 9.03 London Live. 12.03 pm Call In. 2.03 200 Showtime. 4.30 News. 4.00 London Sports Desk. 6.35 Good Fishing. 7.00 Black Londoners. 8.00 News. 8.05. 10.00-5.00 am As Radio 2.

## London Broadcasting

5.00 am Morning Music. 6.00 The Ashes. 6.30 News. 7.00 am Open. 1.00-2.00 pm LBC Reports. 4.30 News. 4.00. 8.00 After Eight. 9.00 Nightingale. 12.00 LBC Reports. Midnight. 1.00 am News Extra.

## Capital Radio

6.00 am Graham Dixon's Breakfast Show (S). 9.00 Mike Smith's (S). 12.00 pm News. 1.00 pm Roger Goon's (S). 7.00 London Live. 8.30 Adrian Love's Open Line (S). 9.00 Alan Freeman's (S). 11.00 Mike Allen's Night Show (S). 1.00 am John Sack's Night Flight (S).

VHF only—6.00-7.00 am and 5.45-7.10 pm Open University.

AROUND BRITAIN  
GREAT YARMOUTH  
KING EDWARD  
ART GALLERIES  
CLUBS



THE ARTS

Lyceum, Edinburgh

Richard III

The first person on the stage is not Richard but Queen Margaret, shrouded in black like the two ravens that perch high on the set. She haunts the evening like a ghostly commentator...

self the victor, Richard, once he is King, is dogged by a Fool who, intentionally or not, also looks rather like Napoleon. There are occasional touches of dance in the movement, and inoperable props such as the wagon on which Queen Elizabeth arrives...

Cinema

Hamlet, prince of one-liners

by NIGEL ANDREWS

Manhattan (AA) Screen on the Hill, Gate Cinemas, Classic Oxford Street The Main Event (AA) Warner West End, ABC Shaftesbury Avenue Sidney Sheldon's Bloodline (X) Plaza 2



Woody Allen and Mariel Hemingway in 'Manhattan'

Few clowns seem to be proof against that legendary itch to play Hamlet. The Woody Allen last seen in action directing Interiors and now directing and starring in Manhattan is the latest victim of the Elsinore syndrome.

Now in Manhattan Allen is here again in person and so are the jokes. But shades of Interiors fall across the film like prison bars. The milieu recognisably barks back to Annie Hall—Greenwich Village smart-set Bohemianism and much high-faluting talk about Art and Love and Death.

But the post-Interiors difference in Manhattan is that New York is photographed in moodily black-and-white, is set down in Manhattan with a tape recorder to voice his private list of Things That Make Life Worth While...

Jupiter Symphony. Cézarne's still-lives, etc.—one has a shudder of fear that the doctor has caught his own patients' illness, the satirist has been metamorphosed into his own target.

For all its measured pace, Manhattan offers the Allen fan an uncomfortable switchback ride between the resistibly serious search for the sublime and the irresistibly comic exposure of the ridiculous. The martyr fire of one-liners is still dizzyly brilliant.

tries by every known cajolement to persuade him to return to the ring and change a losing streak into a winning one...

Meanwhile, the distaff side of New York Jewish humour is represented by Barbra Streisand. The Main Event introduces this pugacious, frizz-haired comedienne with Ryan O'Neal, her co-star in What's Up, Doc?...

Novelist Sidney Sheldon, who launched that epic of tosh The Other Side of Midnight on an unsuspecting world some time ago and saw it swiftly mutated into film, has managed the same trick with Bloodline. He has welded his own name to the film's title, rather unbecomingly, in case you were in any doubt that the brain that forged that earlier tale of passion, murder and revenge among the very rich had created this later ditto.

And Audrey Hepburn becomes the new president of Roffe Pharmaceuticals but shouldn't be bothered with too much. Concentrate instead on the cherishable hideousness of the photography (whatever could have happened to the normally reliable Freddie Young)...

Kent Opera at Edinburgh

In Peter Diamond's day the Edinburgh Festival acted as a showcase for the glossy international values of opera. The new festival regime appears to promote the opposite view of the arts. Opera at Edinburgh this year is being given by two British companies, and is being sung by them in English.

execution. And the sum was the most unmovable Transcendental of my experience, a cold, colourless affair whose virtues are appreciated in a spirit of dispassionate uninvolvedness. Colourlessness, both intentional and perhaps unplanned, formed the subordinate theme of the evening.

Festival Hall

La Sylphide by CLEMENT CRISP



Eva Evdokimova and Peter Schaufuss

It is a rare pleasure to see a seminal classic of the dance theatre staged so that it seems entirely fresh, put into exact artistic focus by love, understanding, and scrupulous care. Such is the happy case with Festival Hall's new La Sylphide.

ing the dramatic and emotional validity of the work. Unthinking repetition, received ideas, barnacled and often incorrect traditions, obscure the first artistic impetus of the choreography. It is to Schaufuss' immense credit that he brings a young man's ardour to his version, as to his interpretation. The drama is urgent, most importantly in exposing the crisis which lies at the heart of the ballet—that Romantic dilemma which finds the hero torn between domestic reality and an illusory bliss.

feetly suited to a role than to that of the sylph. She is revealed as a dancer of greatness, whose dulcet grace, lightness, fluency in setting out the choreography, are ideally used in the serial flights of the sprite as in her tender affection and final pathetic death. Whether bounding imperiously through the air, or posing deliciously, she seems the sylph incarnate. Schaufuss brings to James all that joyous ease and soaring eloquence that were the hallmarks of Bournonville's own style; in a performance of total authority we must salute not only superb technical and stylistic accomplishment, but also a dramatic impulsiveness that explains James's every action.

filling out the restored passages of music, Schaufuss shows unerring taste: the dance vocabulary is pure Bournonville, and it melds seamlessly into the existing text. The settings are perfect, with the forest glade an especially lovely, leafy conceit of encroaching trees, lit by John B. Read with his accustomed skill. The staging is, I would hazard, without serious flaw, and Festival's artists make a bright and convincing show in mastering both the buoyant and gentle aspects of Bournonville's choreography. A grand and glorious achievement. In Bournonville's centenary year, one of his finest ballets still does honour to a master of choreographic drama.

Advertisement for King Edward Panatellas cigarettes, featuring a pack of cigarettes and the text 'pack of 5 Panatellas only £1.30'.

Advertisement for Botswana RST Limited, including an interim report for the six months ended 30 June 1979. The report contains financial tables for production and sales, consolidated income statement, capital expenditure, and a review of operations.

# FINANCIAL TIMES

BRACKEN HOUSE, CANNON STREET, LONDON EC4A 3DF

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Friday August 24 1979

## The dangers of overkill

CONSERVATIVE supporters who are interested in economic policy may well feel that a Government with friends as candid as the forecasters of the London Business School needs no opposition. In the hope, as it put it, that it will be better for the Government "to be conscious of the risks it is running now rather than be shocked by them later," it accuses Mrs. Thatcher in effect of trying to push the economy at a pace at which it cannot respond, and of risking heavy and possibly permanent damage in the process.

**Recession**  
While the LBS accuses the Government of mental confusion, its own analysis invites misunderstanding. It calls for a more gradual approach to the Government's objectives on two quite different grounds. First, it argues that a determination to reduce the borrowing requirement year by year, regardless of the state of the business cycle, will immobilise the self-balancing features of the economy. It forecasts a recession next year, as everyone else does, and calculates that a rise in the PSBR of no less than £3bn would be consistent with financial stability in these circumstances.

The second strand in the argument is quite different although it might seem to point to the same conclusion. The LBS argues that trying simultaneously to cut the PSBR and the level of taxation adds up to a very large shift of resources from the public to the private sector; and that there is a danger of overkill.

This can be viewed in two ways. First, the shift may simply be too fast for the private sector's likely response; it could prove severely deflationary in the short run. This seems questionable: private reluctance to spend is not our problem. Secondly, the programme involves not only a shift to the market sector of things which can be shifted, but an attack on the services in which the State has a virtual monopoly. In short, it would be inconsistent and rational to try to shift the financing of some parts of the public services into the private sector, but not simply to slash at the services themselves.

## Prague and its dissidents

ELEVEN YEARS have passed since the Warsaw Pact invasion of Czechoslovakia crushed the attempt by the Communist party itself to throw off the heavy legacy of its post-war Stalinist past and reach itself to the democratic traditions of what was once the most advanced country of central Europe.

**Emigration**  
As such the Prague Spring was a cultural as well as political event. Its suppression dealt a massive and continuing blow to a country which had already suffered grievously from the elimination of its intellectual and cultural elite both in 1938 and in the Stalinist purges—which were arguably harsher in Czechoslovakia than anywhere else in the Soviet bloc.

The Soviet Union helped to anaesthetise Czechoslovakia by channelling economic resources into the country. It hoped that higher living standards, a dash in the country and other perks for fidelity and conformity would persuade ordinary Czechoslovaks to cultivate their garden and leave politics and ideas to the technocrats and bureaucrats. In the long run the Russians clearly hoped that the new rulers of Czechoslovakia would repeat the cautious policies of national reconciliation pursued with considerable success by Hungary's Janos Kadar in the aftermath of the similar invasion of Budapest in 1956.

Unfortunately for the Russians and for Czechoslovakia itself the men appointed after 1968 have proved themselves incapable of carrying out such a policy. Even in the economic field the cautious attempt to restore some of the reforms proposed by the Dubcek regime is proving extremely difficult to carry through because it demands a degree of responsibility and risk-taking from managers and others which few are now prepared to take on.

This underlines the fact that complex modern industrial societies require a framework of liberty under the law within which ideas and innovative tendencies can be aired and experimented with.

That this fact of life is not recognised by the present regime in Prague is reflected most clearly by its continuing repression of those stubborn and courageous people who throughout the past decade have con-

# Barre's medicine fails to cure all French ills

By ROBERT MATHNER in Paris

THE ONLY people in France to have taken any real notice of the Government's appeal that holidays should be staggered as in other Western European countries, have been the left-wing opposition and trade union leaders. While most of the population is still slumbering under its annual August anaesthetic and the streets of Paris remain deserted, they have been doing their best to waken the dead with bugle calls heralding one of the hottest autumns that the country has known for years.

M. Georges Marchais and M. Georges Seguy, respectively leaders of the Communist Party and the Communist-dominated Confederation of Labour (CGT), returned home unusually early from Yugoslavia—where, as good Euro-Communists, they spent their holidays in preference to a Soviet watering place—to announce their plans.

M. Marchais' gleeful proclamation that he was prepared "to join forces with the devil" to fight the Government's economic policies was matched by more down-to-earth announcements by M. Seguy that the main railway union, which is organising a strike this week and that the CGT would hold a mass protest demonstration in Paris on September 5.

Forecasters of a hot autumn are, of course, a traditional feature of the French political and labour scenes. Sometimes they materialise and sometimes they do not. However, the chances of the prediction coming true this year are considerably greater than at any time since President Giscard d'Estaing's election in 1974.

The reason for all the premature agitation this year is that the left-wing parties and trade unions have smelt blood. Saturday is the third anniversary of the nomination of M. Raymond Barre as Prime Minister and his self-appointed deadline for curing the French economy is about to be reached. When he first announced his austerity plan drastically to cut the rate of inflation, restore the balance of payments and stabilise the franc, M. Barre said it would take three years for his medicine to work. Not even his most enthusiastic supporters could claim today that this goal has been achieved, although it is fair to say that the economic situation would be a great deal worse if the

sult of spiralling inflation, his whole neo-liberal approach to economics has come under attack, all the more because the sacrifices he has demanded from the working population have not been matched by promised improvements in certain essential areas.

One of the main sacrifices has been the acceptance of a high rate of unemployment as the natural corollary of restrictive economic policies which have kept the growth of GNP down to well below 4 per cent. In 1979, on the most optimistic assumptions, the economy is expected to expand by a bare 3

per cent. Unemployment has been further exacerbated by the Government's industrial strategy, the otherwise praiseworthy aim of which is to make French industry internationally competitive.

Lame ducks, as M. Barre has repeatedly emphasised, have no place in this strategy. The Government quickly put this principle into practice with its radical plan to rationalise the hopelessly debt-ridden steel industry. The progressive lay-offs of some 20,000 workers in Lorraine and Northern France provoked an outbreak of workers' unrest and violence, the like of which France has not seen for a very long time. If, finally, the Government's plan has been reluctantly accepted by all the unions except for the Communist-led CGT, it was not only because of the generous financial compensation and comprehensive resettlement and retraining schemes offered by the authorities. Certainly an important factor was that the country's economic prospects looked much brighter a few months ago than they do now and that important elections were still a long way off.

Within the last three years, the number of unsatisfied job applications has risen by some-

thing like 480,000, an increase of more than 50 per cent, in spite of the adoption by the Government of two special employment schemes and the departure from France of tens of thousands of immigrant workers, lured home by French Government golden handshakes.

The Government's disappointing record on inflation and employment must be set against M. Barre's success—however temporary—in bringing the balance of payments under control. At the end of last year, France's current account was in surplus to the tune of FFr 18.6bn (nearly £2bn), com-

pared with a deficit of FFr 16.4bn in 1977—and the trade balance also swung into a FFr 2.5bn surplus after two successive years of deficit.

Even this achievement has been undermined, however, by the sharp rise in oil prices this year. This is expected to add some FFr 18bn to the country's oil import bill in 1979 and as much as FFr 30bn in 1980. Given that France is dependent on imports for some 75 per cent of its energy requirements, the outlook is also less than bright on this front. Not only has the basic price of imported oil increased by leaps and bounds, but the recent hardening of the dollar has made it even more expensive for the French. As a result, the country is expected to have a trade deficit of at least FFr 10bn this year, although there are still hopes that the current account will show a small surplus.

Any objective assessment of M. Barre's three-year record must, of course, take into account the impact of oil-price rises on the international economic climate and thus on the French economy. The Prime Minister can argue with some justification that he had had the carpet pulled from under his feet by the OPEC decisions. As



The old alliance: Communist leader M. Georges Marchais (left) and M. Francois Mitterrand of the Socialists pictured before their split in 1978.



Like minds: M. Raymond Barre, the Prime Minister, with President Valery Giscard d'Estaing.

M. Barre has always emphasised that he will stick firmly to his principles. And those principles imply a continuation of his austerity policies until the recovery of the French economy is complete.

Until recently, it was widely believed that President Giscard had decided to retain his Prime Minister until the presidential election in early 1981. Assuming that he wins the election, he was then expected to appoint a new Head of Government. But the growing opposition to the Government's economic policies could bring about a change in the picture.

Much will depend on the success that the unions have over the next few weeks in marshalling their troops and organising strikes, and even more on the ability of the Socialist and Communist parties to join forces in fighting the Government.

A straw in the wind in the proposal by M. Mitterrand—elected in 1974—to revive the old alliance with the Communists.

For the moment there is no more than a slim chance that this proposal will materialise, because of the deep mutual suspicion which still marks the relations between the two main parties of the Left, following their suicidal quarrel in the autumn of 1977 and the beginning of 1978.

## MEN AND MATTERS

### Strangers in the night

Drama on the high seas of a highly disagreeable nature, or at least the threat of it, lies behind the row between Lloyds and the Kuwaitis about whether or not the Gulf is a war zone. Few would argue that the Gulf is as safe a place as, say, Bournemouth—particularly if one happens to be travelling on a Very Large Crude Carrier (VLCC). The word among tanker owners of my acquaintance is that fleet owners have this week received two telexed warnings from their agents that they should move their VLCCs through the 30-mile wide Straits of Hormuz by night, and then with lights doused. This is because of persistent reports that terrorists are planning to block the Straits by blowing up a fully-laden tanker with rockets.

Such an alarming prospect raises a further dilemma for the tanker operators. If they take such well-intentioned advice, what will the insurers have to say?

The view in Lime Street is that if anything, switching the lights off changes the odds, for the worse. Insurance specialist Michael Miller, a partner of Thomas R. Miller, professed himself "horrified" by this method of avoiding the attention of PLO. "Any leading underwriter would react in the same way as I do—that is, to have 50 blue fits."

It does not take any great feat of the imagination to realise that an oil tanker, decorated with fairy lights or not, is a highly vulnerable target. Without the minimum six-mile visibility for the mezzard lights, and 9 miles for the side and stern lights, such ships are sailing into a legal minefield as well.

In the event of a collision there is, says Miller, a serious threat of a "privacy" situation, which is the equivalent, in insurance terms, of falling down a manhole. It means quite simply that the tanker-owner has

### Coventry rate: 11 15-minute tea breaks.

Need a drink  
Although Coke-aholics can get their favourite beverage in China these days, the world's most aggressive advertiser has encountered an unusual hurdle. Advertising for Coca-Cola was apparently refused by China's only agency with the flat explanation: "Beverages are not our aim. We must see whether we need the product in our country before we advertise." Quite how this went down with executives given to remarks like "Coca-Cola is everything I exist for" is not, unfortunately, recorded. To the chain-drinking staff at mission control in Atlanta, Georgia, the idea that anyone can do without Coke must be enough, almost, to drive them to something stronger.

### Cold shower

The Ford Motor Company is in hot water with the Welsh Tourist Board as a result of its latest advertising campaign for Ford's new truck. Under the headline "We'd like to tell you a dirty story," it describes their study of performance under adverse weather and ground conditions in open-cast coal mining in South Wales. "Un-made roads, slag heaps, mud (if it never stop raining in Wales?)," the advertisement asks.

Lord Gordon Parry, chairman of the Welsh Tourist Board is not amused. "Wales has some of the finest weather in Europe and beautiful scenery to go with it," he says. He attributes the impression of pervasive gloom to flying visits by Ford executives in connection with the company's new engine plant at Bridgend. "If they stayed a little longer, they might realise that it is not only as beautiful as America, but has fine weather as well. It is like judging British sailing conditions on

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# When being an ex-Labour MP is not an asset

By ELINOR GOODMAN, Lobby Staff



Hugh Bourdidge, Ex-Labour MP Bill Price, now keeper of a pub in the Forest of Dean.

**UNEXPECTEDLY AVAILABLE:** Specialists in general... (Text continues with details about availability of services and people.)

Meanwhile, Mr. Alan Lee Williams, who when he last lost his seat in 1970 was photographed at work on a tractor, now seems to have fallen on his feet as director general of the English Speaking Union.

A rather larger proportion have either had to take jobs which were below their original expectations or ones which they regarded as temporary.

Others—like Mr. Bill Price formerly Parliamentary Secretary at the Privy Council Office, who bought himself a pub a few years ago and is combining running it with a consultancy for the National Union of Licensed Victuallers—have been able to make their own arrangements, and some of the union-sponsored MPs have been taken back into union work.

### Tax free

Because all defeated MPs get three months tax-free severance pay, totalling around £1,750 and can draw the dole from day one if they want to, many seem to have got into real financial difficulties.

Mrs. Shirley Williams, 1979's best loved political casualty, was overhauled with offers before she settled for a combination of part time work at the Policy Studies Institute and a contract to do six TV programmes for the BBC.

Even so, the time since the election has not been particularly happy for many of those who lost their seats.

Others have found the contacts they made in office particularly unhelpful outside.

The bitterness is largely confined to ex-Labour MPs who believe that it is much easier for Tories to go back to their normal working lives because many of them retained one foot in the outside world while at Westminster.

Of the 45 Labour MPs who lost their seats, 15 had previously worked in education.

It has been the teachers and lecturers among the ex-Labour MPs who have been made most aware of both their Government's, and the present Government's, public expenditure cuts.

Of the 39 or so former Labour MPs contacted by the Financial Times, none is going into private industry and only a handful, like Mr. Mike Noble, are operating on the fringes of the private sector as consultants of some kind.

### Haphazard

The biggest source of work for redundant Labour MPs have been the media and education in its widest sense.

fairly haphazard way of life.

Television's biggest coup is undoubtedly persuading Mrs. Shirley Williams to swap seats and act as the interviewer for a series of programmes the BBC is doing on political leaders.

Not only have teaching jobs already been cut, but potential employers are apparently anticipating future cuts by postponing filling vacancies until the last possible moment.

other, they are worried about upsetting the existing hierarchy by appearing to give somebody a job because he has been in Parliament.

More fundamentally, companies often want a firm assurance that the politician will not be rushing back to Westminster at the first possible opportunity.

### Old jobs

A few Labour MPs have been able to pick up their old jobs where they left off.

But, in general, it seems that it is much easier for Tories who lose their seats to ease back into their old jobs than it is for Labour politicians who are more likely to have regarded being an MP as a full-time occupation.

seats in by-elections only to lose them in the general election. all did some work for their old employers while MPs. In the same way, Mr. Douglas Henderson, the SNP's spokesman on employment, has been able to pick up the threads as a management consultant.

Even so, not all the MPs who lost their seats are worried about work. Some, like Mr. Doug Hoyle, one of the three former MPs who tried for Manchester Central, have not really tried to find jobs yet.

One former MP, who when in Parliament had an ability to make political capital out of practically anything, is going round describing himself as a "blood and guts example of the failure of the Government's policies to switch resources from the public to the private sector."

According to him, a period out of work is good experience for a Labour MP—provided it is not for too long.

But for most of those still looking for work, or making do with some temporary job, such problems of adjustment seem insignificant.

Even so, not all the MPs who lost their seats are worried about work. Some, like Mr. Doug Hoyle, one of the three former MPs who tried for Manchester Central, have not really tried to find jobs yet.

But for most of those still looking for work, or making do with some temporary job, such problems of adjustment seem insignificant.

## Letters to the Editor

### Perks, tax and transport

From Mr. L. Duffield  
Sir,—It is a very, very long time since I found myself so strongly disagreeing with an editorial as I did yours of August 20 on the subject of "Perks and the tax base."

greater injustice, but this time emanating from the very source which so violently objected to the 1978 proposals.

The concept now is that lower rates of tax and no pay restrictions should eliminate the need for "perks" and in the meantime the proposal to treat "perks" as income is welcome.

It would be naive to suppose there are not blatant examples of abuse but for the vast majority of companies are constrained by cash requirements alone to provide transport for individuals only where there is a genuine need and no equally efficient alternative.

the decline of students from "poorer" ones your correspondent fails to draw the logical conclusion that this trend has become hastened since 1976 by successive fee increases out of all proportion to the rate of inflation.

Far from "saving" public funds, we are in danger of killing the goose that lays the golden egg, and if we ruin the international atmosphere and academic standards of our educational institutions in the process, that is also our loss.

Robert Watson, William Beale, UK Council for Overseas Student Affairs, 60, Westbourne Grove, W2.

### Developing countries

From Mr. B. Zlataric  
Sir,—In his article dealing with the world conference on agricultural reform and rural development (August 7) Mr. A. Harris handled, in masterly fashion the complexity of rural development and advocated with vigour the need for a two-way traffic between Governments and organisations representing rural people in the total process of development.

I would like to add a few facts which, I believe, will strengthen the points made by Mr. Harris and which represent the key factors and leverage of rural development.

Governments themselves, and through their policies, all other sectors of the economy, should adequately contribute to rural development.

Experience has shown that the smallest farm can become a productive unit, if there is group action, provision of collective services, plant or equipment tailored to the specific needs of the situation. No rigid rule, like collective ownership of land alone can do the trick.

### The price of coal

From Mr. E. Schofield  
Sir,—John Lloyd, quoting from the Electricity Council development plan in his article "Report backs nuclear growth" (August 13), states that "coal prices will rise roughly in line with oil."

While one can see this is likely to happen in the case of gas, the vertical climb of the oil price graph, spread over a depletion of 30 years, is surely unlikely to be matched by that of coal with an estimated 300-year reserve.

E. Schofield, The Old Hall House, North Curry, Taunton, Somerset.

### Great greenfly count

From Mr. C. Robinson  
Sir,—Your article (August 21) on the greenfly plague asserts that, at the height of the invasion, there were:

- (a) 14m greenflies for each member of the population.
- (b) 800,000m greenflies.
- (c) 15,000 greenflies to the ounce.
- (d) 200,000 tons of greenfly.
- (e) 400m greenflies per acre of wheat.

**GENERAL**  
UK: Mersey dockers meet to discuss strike.  
Advisory, Conciliation and Arbitration Service meets engineering unions to discuss strike plans.  
Edmund Nuttall, construction company, in Gravesend Crown Court on charges of violating health and safety regulations, following power station cage

death crash last year.  
Overseas: Vice President Walter Mondale, of the U.S., visits Peking.  
Chinese economic delegation, led by State Economic Commission Vice-Minister Ma Yi, on five-week visit to Japan.

**COMPANY RESULTS**  
Final dividends: Howard Tenens Services, Leigh Mills

Company, Second Alliance Trust, Interim dividends: Alliance Trust Company, W. N. Sharpe Holdings, Ward Holdings.

**COMPANY MEETINGS**  
John J. Lees, Albany Hotel, Bothwell Street, Glasgow, 12.  
Lennons, Abbotts Well, Chester, 12.  
R. W. Toothill, Durham Way, Aycliffe Industrial Estate, Darlington, Durham, 12.

**LUNCHEON MUSIC**, London Metropolitan Police Band concert, Tower Place, noon to 2.00 pm.

Travelling Voice Pop Band, St. Martin-within-Ludgate, 12.15 pm.  
Works by Fontana, Biber, Handel and Bach played by Petronella Dittmer (violin) and Richard Coulson (organ).  
St. Lawrence Jewry next Guildhall, 1.0 pm.

We fly direct to VENEZUELA.  
We fly direct to COLOMBIA.  
We fly direct to ECUADOR.  
We fly direct to PERU.  
We fly direct to BRAZIL.  
We fly direct to ARGENTINA.  
We fly direct to CHILE.

## Guess how we're going to fly to Ecuador.

As well as flying direct to all these countries in South America, British Caledonian is introducing the only direct service from London to Guayaquil, Ecuador. Starting August 28th, departures will leave Gatwick on Tuesdays at 10.30 am. Flights go through Caracas without changing plane and call at Quito on their return.

**British Caledonian**  
We never forget you have a choice.

For details and for flights to Lima, Bogota, Caracas, Recife, Rio, São Paulo, Buenos Aires, and Santiago, see your travel agent or local British Caledonian office.

### Overseas students

From the Executive Committee Chairman and Executive Secretary, UK Council for Overseas Student Affairs

Sir,—Michael Dixon (August 10) does not appear to have done his homework in giving credence to a Government case for "full cost" fees for overseas students which makes little economic sense and ignores the weight of evidence and informed opinion against such a move.

It is unfortunate that in such a detailed examination of the issue your correspondent does not record that an assurance was given by Baroness Young, Minister of State, Department of Education and Science, in the House of Lords on July 5 that "we shall also take full account of the longer-term trade benefits which may well accrue" in framing future policy.

ment to ignore completely the foreign exchange earnings (£300m in 1977—the latest available official statistics), trade benefits, and research inputs of overseas students in putting forward a case for "full cost" fees. It is also in our view wrong for average costs to be used in calculating the "subsidy" when overseas students clearly represent students "on the margin." The exception to this general rule is to be found on some post-graduate courses, where the students' contribution to research more than outweighs any national subsidy.

Your correspondent's detailed analysis of recent figures masks the unchallenged fact that we are almost alone in the world in charging differential fees for overseas students and research. It should also be remembered that the students in the figures quoted already pay "full cost" fees where they are on courses specifically arranged for students from overseas. Moreover, in highlighting the increasing proportion of students from "richer" countries and



مركزنا الاخبار

# Distillers

## Export turnover increases to £332 million

### General observations on results

**Turnover and profits**  
Total turnover excluding duty increased by some 8% and because percentage net margins were generally maintained Group trading profit rose in proportion from £160.6 million to £173.9 million. The road haulage drivers' strike virtually closed the ports in January and the backlog of Scotch whisky shipments had not been fully overtaken by the end of March. This resulted in the deferment of about £3.5 million of trading profit into the current financial year. The strike did not have the same effect on the gin sector where operations were already disrupted by internal industrial action the cost of which in under-utilisation of production capacity cannot be recovered. Despite these difficulties both Scotch whisky and gin, assisted by sales made ahead of the April budget, showed volume increases in the home trade. Gin also achieved an increase in export markets but Scotch whisky shipments for the reason stated above did not more than maintain the previous year's level. The Food Group and Carbon Dioxide Company again achieved profit increases.

### Dividends

The directors recommend a final dividend of 6.75p per share. An interim of 3.00p per share has already been paid making the total distribution 9.75p. Together with the associated tax credit the total distribution is equivalent to 14.12047p compared with 10.89557p per share last year.

### Scotch whisky

#### Production

The rates of output of all our distilleries were fully maintained with production planned to provide the necessary stocks for our projected world sales. It remains our view that the forward position is adequately covered and that appropriate inventories for all our brands are available.

Blending and bottling operations were affected for several weeks by industrial relations problems at one of our major plants. The road haulage dispute in January disrupted output and delayed shipments from many of our production units. It was, however, possible to recover the major part of the loss of production due to these events by re-programming output and stock levels in the subsequent periods.

The Shieldhall, Glasgow, plant built for John Walker & Sons became operational in the latter part of the year and reorganisation of bottling capacity elsewhere within the Group is currently in progress, notably at the Leven, Fife, plant of Distillers Company (Bottling Services) where additional bottling equipment is being installed to widen the range of work carried out.

At Kilmarnock, John Walker & Sons laid plans for and are now involved in the construction of a new blending plant based on the design used at Shieldhall, which has been proved to be most effective in service.

In recent years the Group's distilling requirements have outreached its own malting output and to restore the balance a new maltings and barley storage unit is under construction at Roseisle, Morayshire. That location is well situated for essential services and for distribution to distilleries.

The development of our warehouse site at Bonnybridge, Stirlingshire, continued and the building of two warehouses is now well advanced with occupation of the first sections planned for autumn.

### EEC

In my statement last year I commented at some length on the consequences of the EEC Commission's formal objections to the Group's Home Trade Conditions of Sale and Price Terms. I explained why we had felt it necessary to withdraw Johnnie Walker Red Label and Haig Dimple from the UK market and to increase the UK price of other brands, such as Black & White and VAT 69, and I drew attention to the fact that the Company had appealed to the European Court of Justice against the Commission's decision. The appeal has not yet come forward, nor has a date been set for its hearing.

The commercial decisions referred to above have in the meantime proved to have been justified. The brands whose UK prices were substantially increased or which were withdrawn from the home market have increased their sales in the continental EEC. Johnnie Walker Red Label had a particularly successful year and recorded substantial gains. I should also make special mention of Haig Dimple which achieved a significant increase in its market share in Germany.

Our expressed concern that parallel exports, ostensibly ordered for continental markets, would inevitably find their way to other markets of the world has also proved to be all too well founded. We strive to contain this problem but it is both real and disturbing. The Scotch whisky industry, of which your Company is a major part, provided in 1978 some £500 million of export earnings outside the EEC. For those earnings an effective sole distributor system is vital. It is therefore with dismay that our industry witnesses the continuing threat posed to that system by the unrestrained, but nonetheless damaging, consequences of EEC policy.

### Home sales

Following the withdrawal of Johnnie Walker Red Label and Haig Dimple from the home market and the application of substantial price increases to five other brands on 1st February 1978, the primary marketing objective had to be to ensure an expansion of sales of those of our brands which remained in the market at competitive prices, in particular Haig and White Horse. Considerable progress was made in this direction during the year and the two new brands, John Barr and The Buchanan Blend, gained wider distribution. The lower priced whisky, The Claymore, launched in the summer of 1977 exceeded all forecasts and established itself as a major force in its sector of the trade.

Because of delays in the publication of industry figures by HM Customs and Excise, the most recent information on the home market available at the time of writing relates to the eleven months ended February 1979 and indicates an industry gain to that date, over the same months of the previous year, of 10%. However the comparable months to February 1978 had shown a shortfall of 9.4% on the 1976/77 figures and the underlying trend in the growth of industry clearances was therefore less pronounced than the current statistics would suggest.

### Extracts from the statement by the Chairman, Mr. J. R. Cater, circulated with the Report and Accounts for the year ended 31st March, 1979.

Nevertheless, although total Group sales in the UK increased in volume during the year, the March industry clearances, when published, will show that our overall share of market had declined.

During the financial year no further increase in excise duty was imposed but the Government made no concession in regard to granting a period of credit in respect of payment of duty despite continued representations made by the industry. As a result our industry remained in the position of being less favourably treated than other alcoholic beverage industries.

### Export sales

By April 1978 the price increases introduced in February of that year had become fully effective and during the financial year to 31st March 1979 the earnings from our exports of Scotch whisky were at a generally satisfactory level. Nevertheless, strong price competition in many important areas, including Australia, South Africa, Canada, Spain, Scandinavia and the bulk market in the USA, continued to make the retention of market share by volume difficult.

Government statistics for the year showed that the industry attained a 4.9% increase in total exports which exceeded 100 million proof gallons.

Total Group exports of Scotch whisky remained virtually static, although these were to some extent held back as a result of the road haulage strike in January. Not all of our companies were able to effect shipment in February and March of total quantities represented by their enlarged order books but little if any business was irretrievably lost.

Group performance in export markets did not therefore, for the first time in some years, match that achieved by the industry in general. We tend to doubt that world consumption outside the UK increased to the sort of level indicated by the Government statistics. Certainly our forward estimates of sales potentials did not predict such an increase and in the event we were neither surprised nor discouraged by our own level of sales. A more significant indicator, bearing in mind the effect of artificially large shipments ahead of price increases and distributors' adjustments of their stock levels, is the rate of actual sales in the various markets. Measured against that criterion the majority of our brands performed well.

In the de luxe category in the USA, Johnnie Walker Black Label continued to increase its sales volume while, in the standard brand quality, Dewar's White Label consolidated its position, particularly in New York and the Monopoly States, and Johnnie Walker Red Label did likewise more widely across the country. The competition between all brands imported in bulk and bottled in the United States remained strong, with retail price a crucial factor, particularly in such important States as Florida and Illinois. However, Harvey's, V&A 69 Gold and Usher's Green Stripe more than held their position. Throughout other export markets Johnnie Walker had another most successful year with both Red and Black Label and consolidated its position as leader in very many individual markets. Overall this company remained far and away the world's largest seller of Scotch whisky. Macdonald Greenlees' brand, Old Parr, continued to build on its existing strength in a number of important territories and to establish itself in new areas. Your Company's other main brands remained widely distributed and were marketed with considerable success in the important export markets. The de luxe brands again enjoyed excellent business in the Central and South American countries, while White Horse continued to occupy a leading position in Africa and in Japan.

To cover escalating costs, prices of our various brands were increased by some 12% at the beginning of 1979 in all export markets excluding Canada where, because of the weakness of the Canadian dollar in which currency we invoice our products, the increase was 20%.

### Gin

The year although starting well, was beset with industrial disputes which drastically reduced production for prolonged periods during the second six months. Both Booth's Finest Dry and High & Dry suffered a severe loss of sales in the home trade in the important pre-Christmas period and subsequently exports of Gordon's and Tanqueray were also delayed, with a consequent adverse effect on profitability. A good recovery began to be achieved in March but the loss of market share could not be wholly regained in the financial year. The underlying strength of our brands of gin remains healthy and the prospects for recovery of market share and for continuing growth are encouraging.

Group exports, although restricted by the industrial problems referred to above, reached a record level. Sales of Tanqueray gin in the USA showed a further increase and the outlook for expansion remains excellent.

Shipments of Gordon's gin to Germany, Holland and Belgium were good, although the volume to Germany was slightly down due to stock shortages. Overall, exports to the continental EEC showed a reasonable improvement. Elsewhere, good progress was made by Booth's and Gordon's in Africa, particularly in the French speaking territories, and in Asia but prospects for sales in Australia, following the enormous increase in duty on spirits imposed in the budget last August, cannot be very promising.

In the USA, keen competition among locally produced brands of gin was reflected in a disappointing performance by Gordon's but Booth's High & Dry, in a new package, recorded a substantial gain. In other overseas territories where Group brands are locally produced, good progress was made by Gordon's, particularly in Spain and Venezuela and, to a lesser degree, in Canada and New Zealand. Satisfactory results were achieved by Booth's in Canada and Guyana.

### Vodka

Deliveries of Cossack vodka to customers in the home market, although affected by the industrial disputes at our plants and the consequent loss of production and stock shortages, were nevertheless higher than a year ago.

In spite of increasingly keen competition, notably in the on-licensed trade, we are hopeful of recovering much of the loss in market share suffered as a result of our inability to meet demand during the second six months of the year and believe that the previously recorded growth of Cossack will continue in an expanding market for vodka.

In the USA, sales of locally produced Gordon's vodka, although ahead of those in the previous year, did not show the same rate of growth as the vodka market as a whole, resulting in a marginal loss of market share.

### Other potable products

Pimm's sales in the UK showed a good increase and were particularly strong in the second half of the year. This gives grounds for believing that Pimm's is increasingly coming to be regarded as an all-the-year-round drink. Exports advanced and sales in the USA were encouraging. Sales of Crabbie's green ginger wine in the UK showed a satisfactory gain but shipments to export markets were marginally lower.

The improvement in Hine's turnover and overall profitability continued. The introduction of a Napoleon quality for duty free markets and the Far East showed particular promise.

Trading conditions in Australia did not improve and the large increases in excise duty affected sales. United Distillers Proprietary showed a modest increase in turnover and profit. Tolley, Scott & Tolley's production problems have been fully resolved but the extreme competitiveness in the Australian wine and brandy industries resulted in a further setback to profit.

### Food group

The Yeast and Food Division achieved higher sales of food products to the catering and bakery trades and to other food manufacturers, despite competitive conditions which had an adverse effect on profit margins. There was a significant increase in the demand for frozen products for which additional processing, freezing, storage and distribution facilities have been installed in recent years.

Production rates at the two yeast factories were again at record levels. There was no material fall in the UK requirement for bakers' yeast despite the discontinuation of bread production by a major bakery group at the beginning of the year. Sales of distillery and inactive yeasts improved and exports of active dried yeast to overseas markets were ahead of those in the preceding year.

Sales of shortening and margarine to the bakery industry by the Peerless Refining Company improved but sales of table margarine to the retail trade were below plan mainly because of the road haulage strike. However a less volatile raw material market and more satisfactory margins resulted in higher profits for the year.

### Carbon dioxide

The year's trading produced very satisfactory results in which overall profits showed a further advance. Carbon dioxide sales finished somewhat ahead of last year's level.

On the engineering side, sales volume again showed a useful increase to which all sectors contributed, with cellar equipment sales being particularly strong.

### United Glass

The profit during United Glass's financial year ended 2nd December 1978 rose by £3.5 million to £15.1 million.

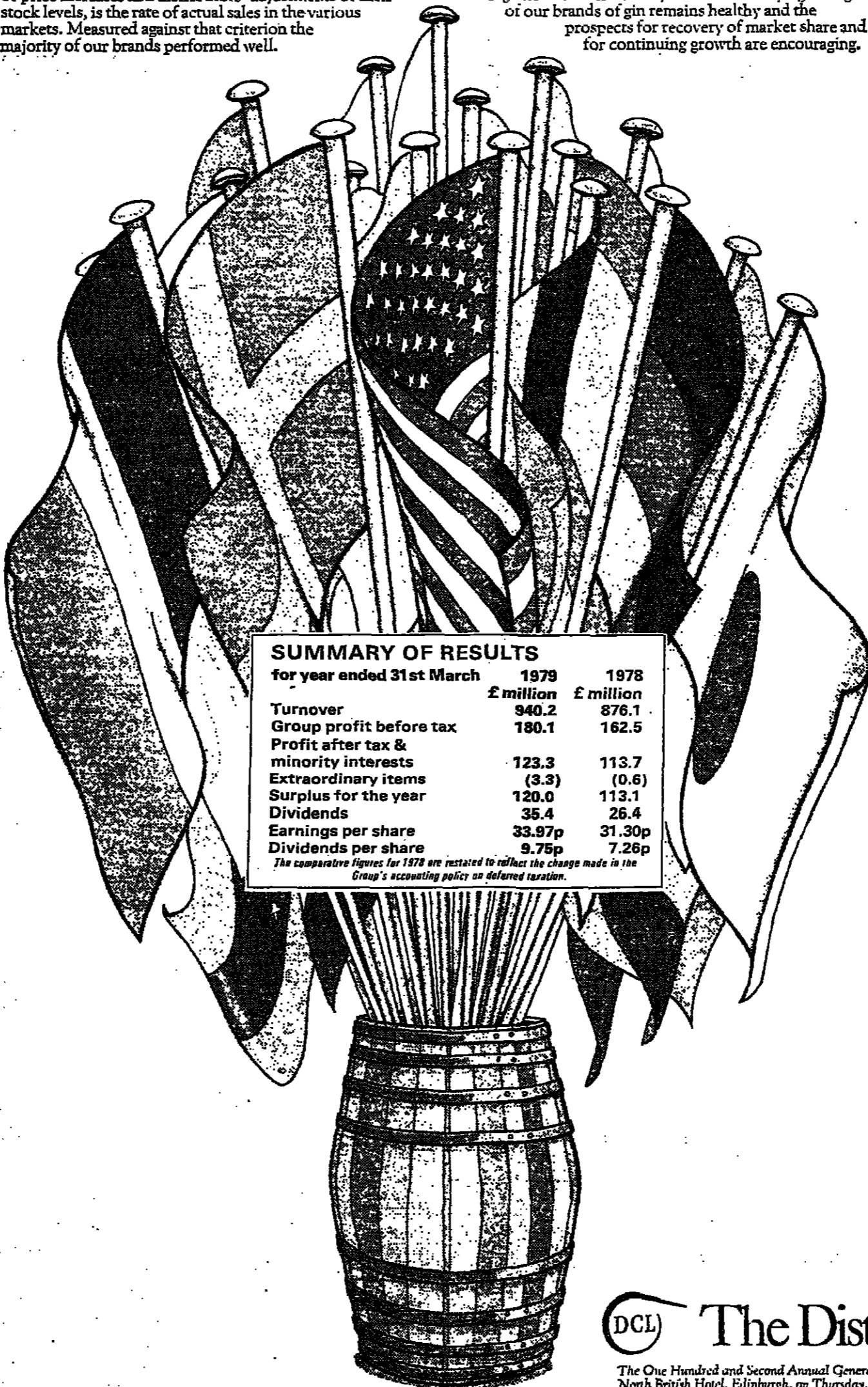
However, the markets for the company's products have been slow to recover from the disruptions caused by the road haulage strike.

### Personnel

Although the year was not entirely free of industrial disputes at local level, there remained a high degree of dedication and solid endeavour by the vast majority of the Group's employees. This contributed greatly to the results achieved in a difficult trading year and the Board is glad to acknowledge these efforts and to express its appreciation of them.

### Future prospects

The recent substantial increases in oil prices must signal a slow-down in world economic growth and consequently in trade. The appreciation of sterling during the past few months together with rising inflation will make the task of exporting more difficult. We cannot, at this time, gauge the effects upon our sales volume but it would be imprudent to forecast more than a small increase over the preceding year. The Company commands valuable assets in the underlying strength of its brands and in the ability and loyalty of those who, at whatever their level of responsibility, contrive such success as is achieved. These together generate long term confidence but, for the current year with all its uncertainties, I cannot reasonably predict more than a modest improvement on the results we are now presenting.



SUMMARY OF RESULTS		
for year ended 31st March	1979	1978
	£ million	£ million
Turnover	940.2	876.1
Group profit before tax	180.1	162.5
Profit after tax & minority interests	123.3	113.7
Extraordinary items	(3.3)	(0.6)
Surplus for the year	120.0	113.1
Dividends	35.4	26.4
Earnings per share	33.97p	31.30p
Dividends per share	9.75p	7.26p

The comparative figures for 1978 are restated to reflect the change made in the Group's accounting policy on deferred taxation.

**DCL The Distillers Company Limited**

The One Hundred and Second Annual General Meeting of The Distillers Company Limited will be held at the North British Hotel, Edinburgh, on Thursday, the 20th day of September, 1979, at 12.15 pm.

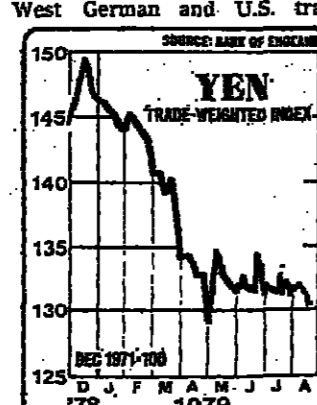


CURRENCIES, MONEY and GOLD

Pound and dollar soft

Sterling declined from its high opening levels, while the dollar edged slightly higher...

The dollar's trade-weighted index, as calculated by the Bank of England...



Yen in slow trading at the fixing. Sterling rose to L1,522 from L1,512.25...

FRANKFURT — The Bundesbank did not intervene when the dollar was fixed at DM 1.8306...

THE POUND SPOT AND FORWARD

Table with columns: Aug. 23, Day's spread, Close, One month, Three months, % p.p.

THE DOLLAR SPOT AND FORWARD

Table with columns: Aug. 23, Day's spread, Close, One month, Three months, % p.p.

CURRENCY RATES

Table with columns: Aug. 23, Bank, Special Drawing Rights, European Currency Unit, Sterling, U.S. dollar, etc.

CURRENCY MOVEMENTS

Table with columns: Aug. 23, Bank of Morgan, England, Guaranty, Index, changes, %

OTHER MARKETS

Table with columns: August 23, Argentina, Australia, Brazil, Canada, etc.

EMS EUROPEAN CURRENCY UNIT RATES

Table with columns: ECU, Currency amounts, % change, Divergence limit %

EXCHANGE CROSS RATES

Table with columns: August 23, Pound Sterling, U.S. Dollar, Deutschmark, etc.

EURO-CURRENCY INTEREST RATES

Table with columns: Aug. 23, Sterling, U.S. Dollar, Canadian Dollar, etc.

INTERNATIONAL MONEY MARKET

Bundesbank tightens credit. Interest rates were firmer for the shorter periods...

UK MONEY MARKET

Moderate assistance. Bank of England Minimum Lending Rate 14 per cent...

LONDON MONEY RATES

Table with columns: Aug. 23, Sterling, Interbank, Local Authority, etc.

Record close

Gold rose \$4 to a record closing level of \$309.8101...

GOLD

Table with columns: Aug. 23, Aug. 22, Gold Bullion (fine ounce), etc.

MONEY RATES

Table with columns: New York, Prime Rate, Fed Funds, etc.

APPOINTMENTS

BUSINESS DEVELOPMENT

An International Bank is seeking a senior business developer to assume responsibility for promoting the Bank's services...

FOREIGN EXCHANGE AUDITOR

Required by a major North American Bank. The successful applicant should be qualified or part qualified A.C.A. Prospects...

CREDIT ANALYSTS

Department Head, three positions up to £10,000. Two years' experience. Six positions up to £7,500.

BSB Banking Appointments

115-117 Cannon St., London EC4N 6AX. Tel: 01-623 7317 & 01-623 9161

LEGAL NOTICES

IN THE MATTER OF DANA PINE FURNITURE LIMITED AND IN THE MATTER OF THE COMPANIES ACT 1948...

NOTICE IS HEREBY GIVEN that the three annual general meeting of the members of The Sungei Besi Mines Malaysia Berhad...

NOTICE OF RATE OF INTEREST U.S. \$300,000,000 of which U.S. \$100,000,000 is being issued as the Initial Tranche...

COMPANY NOTICES

Citicorp Overseas Finance Corporation Limited. Guaranteed Floating Rate Notes Due 1983. Unconditionally guaranteed by CITICORP.

NOTICE OF MEETING

NOTICE IS HEREBY GIVEN that the second annual general meeting of members of Kamunting Tin Dredging (M) Berhad...

NOTICE OF MEETING

NOTICE IS HEREBY GIVEN that the second annual general meeting of members of Southern Kinta Consolidated (M) Berhad...

LEGAL NOTICES

IN THE MATTER OF SCARLET BAND RECORDS LIMITED AND IN THE MATTER OF THE COMPANIES ACT 1948...

LEGAL NOTICES

IN THE MATTER OF THE SHIP "TRANSPORT AND TRADING" COMPANY, LIMITED...

PUBLIC NOTICES

HAMPSHIRE COUNTY COUNCIL. 27th July 1979. All applications for planning permission...

EXHIBITIONS

ALL ABOUT THE NATIONAL TRUST. 27th July 1979. The National Trust is celebrating its 100th anniversary...

TRAVEL

GENEVA. Basic Zurich and Bern. Weekend of cheap flights from 2 UK airports. 27th August 1979.

CONTRACTS AND TENDERS

HELLENIC REPUBLIC MANPOWER EMPLOYMENT ORGANIZATION (M.E.O.) INVITATION FOR INTERNATIONAL BIDS

The Government of Greece has received a Loan (No. 359/GR) totalling \$23.5 million from the International Bank for Reconstruction and Development (I.B.R.D.)...

First Union General Investment Trust Limited

Announcement of terms of rights offer. Further to the announcement dated 3 August 1979, Guardian Liberty Investment Corporation Limited is authorised to announce that the rights offer by FUGIT of 12,420,000 new ordinary shares...

Devon County Council

The above Council is considering the short term leasing of IBM mainframe equipment for trial processing of unit and motor vehicles. Companies experienced in this type of leasing and wishing to be included on a list from which a selection of firms may be invited to tender should apply not later than 30th August, 1979, to The County Treasurer, County Hall, Topsham Road, Exeter, EX2 4QJ.

INTERNATIONAL COMPANIES and FINANCE

Companies and Markets

NORTH AMERICAN NEWS

Steady growth in Esmark earnings

By Our Financial Staff
ESMARK, the food, chemical and energy group, has pushed earnings ahead from \$2.70 to \$3.16 a share in the first nine months of the current year.

Total net for the first nine months was 16.6 per cent up at \$66.4m, on sales increased by a similar percentage to \$4.9bn.

Uni Oil in \$96m merger

By Our Financial Staff
HIGHLANDS COAL and Chemical Corporation has agreed in principle to merge with Uni Oil, a privately-owned refiner.

Highlands has coal interests in Alabama and Kentucky, and earned \$77,609 or 20 cents a share on sale of \$2.3m in the six months to January 31.

Reliance shareholders sue Exxon on takeover delay

BY STEWART FLEMING IN NEW YORK

EXXON, the major U.S. oil group, is facing its first lawsuit as a result of its decision to postpone payment to shareholders of Reliance Electric who tendered stock to Exxon in the wake of its 1.2bn takeover bid for Reliance.

Exxon said a lawsuit was opened against the company in Supreme Court 1, New York County, by Colonial Securities Corporation, on its own behalf and as the representative of a class consisting of all persons who accepted the defendant's offer dated June 21 to purchase any and all outstanding shares of stock of Reliance Electric.

Setback for Federated Stores

BY OUR FINANCIAL STAFF

THREE MORE leading department store groups have now announced second quarter results. Federated Department Stores turned in lower net earnings of \$22.6m, or 47 cents a share, compared with \$27.7m or 58 cents a share, on increased sales of \$1.26bn, against \$1.18bn.

The company said that although the sales gain in the second quarter generally met expectations, sales were extremely promotional and therefore earnings declined.

Good year for United Brands

BY OUR FINANCIAL STAFF

EARNINGS of United Brands, the world's largest producer of bananas and fruit, amounted to \$21.4m or \$1.73 a share for fiscal 1979 on net sales of \$3.5bn.

But the group, headed by Mr. Seymour Milstein, considers the results reflected a considerable improvement on 1978. On a pro forma basis, earnings for that year totalled \$13.6m or 95 cents a share on sales of \$2.7bn.

Marine Midland sells share stakes

By Our Financial Staff
MARINE MIDLAND BANKS of New York has reached agreement to sell its 15 per cent stake in Banque de l'Union Européenne to Nederlandsche Middenstandsbank (NMB), one of Holland's big three commercial banks.

Marine Midland, which is the twelfth largest bank in the U.S. and is the subject of a \$300m bid for control from Hongkong and Shanghai Banking Corporation, is also disposing of all but ten per cent of its 45 per cent interest in another Paris bank, Interunion-Banque.

VW interested in Chrysler facilities

BY OUR FINANCIAL STAFF
THE WEST GERMAN motor manufacturer Volkswagen may be interested in buying facilities from the troubled Chrysler Corporation.

Sharply-increased results for Hoechst in first half

BY JONATHAN CARR IN BONN

HOECHST, the big West German chemical concern, has followed its rival BASF in announcing a sharp rise in profits and sales in the first half of this year.

that the figures for its chemical plant-manufacturing subsidiary, UHDE, somewhat distort the picture and that home and foreign markets for chemical products were equally satisfactory.

Hoechst was able to sell bigger quantities in every department—with above average growth registered in the organic chemicals, plastics and agro-chemicals division.

The performance of the parent company, Hoechst AG, was similarly impressive, with pre-tax profits rising by 34.1 per cent to DM 452m on sales up by 12.7 per cent to DM 5.3bn.

It is clear that at least part of the strong sales rise is due to stockpiling by customers trying to hedge themselves against further rises in raw materials prices.

Beyond that the new figures are being compared with those from a disappointing year. Chemical industry turnover rose by only 2.7 per cent in 1978 and exports by just 3.4 per cent while producer prices fell by 1.6 per cent.

Fransk plans reconstruction

BY HILARY BARNES IN COPENHAGEN

DANISH SHIPPING company, Dansk Frask, which has suspended payments to creditors, hopes that the move will give it time to carry out a reconstruction acceptable to creditors.

Mr. Hahn Petersen could not say how large the company's liabilities are, but he said the company's capital of Dkr 50m (\$9.5m) had to be considered "lost".

The company has already sold off most of its tonnage and now retains only four vessels, two of them on the company's West African continental shelf and two free sailing.

Mr. Hahn Petersen could not say how large the company's liabilities are, but he said the company's capital of Dkr 50m (\$9.5m) had to be considered "lost".

The company retains a 50 per cent interest in a master construction barge offshore support vessel, Belford Dolphin, which

Saleinvest, the Swedish shipping group, reports a pre-tax loss of Skr 15m (\$3.6m) for the first half of 1979 compared with a loss of Skr 68m, writes Victor

FT INTERNATIONAL BOND SERVICE

The list shows the 200 latest international bond issues for which an adequate secondary market exists. For further details of these or other bonds see the complete list of Eurobond prices published on the second Monday of each month.

Table with columns: U.S. DOLLAR, Issued, Bid, Offer, Change on day, week, Yield. Lists various international bonds like Alcoa of Australia, Alex Hudson, etc.

Table with columns: OTHER STRAIGHTS, Issued, Bid, Offer, Change on day, week, Yield. Lists various international bonds like Nordic, Avco, etc.

Table with columns: DEUTSCHE MARK, Issued, Bid, Offer, Change on day, week, Yield. Lists various international bonds like Argentina, Asahi, etc.

Table with columns: SWISS FRANC, Issued, Bid, Offer, Change on day, week, Yield. Lists various international bonds like Argentina, Asahi, etc.

Table with columns: CONVERTIBLE, Cw, Cw, Bid, Offer, Chg, Prem. Lists various international bonds like Alcoa, Avco, etc.

ICI in 1979 1st half year. Sales First half 1979 £2,567 m. Exports from the UK First half 1979 £523 m. Profits before taxation & grants First half 1979 £260 m.

The Board of Directors of Imperial Chemical Industries Limited announces the following unaudited trading results of the Group for the first half of 1979, with comparative figures for 1978.

Tenneco move

The oil, chemical and packaging concern Tenneco is considering the acquisition of the outstanding 10 per cent minority in its 90 per cent-owned subsidiary East Tennessee Natural Gas Company, AP-DJ reports from Houston.

EUROBONDS

Dollar stock holds steady

By Francis Ghilès

A \$20m five-year floating rate note is being arranged for Siam Commercial (Cayman) by a group of banks led by Citicorp and Manufacturers Hanover.

In New York, Morgan Stanley is arranging a \$50m five-year issue of floating rate note certificates of deposit, due 1984, for the Bank of Tokyo.

Meanwhile Imperial Oil of Canada has filed a registration statement with the U.S. Securities and Exchange Commission for a \$250m Yankee bond due 2009.

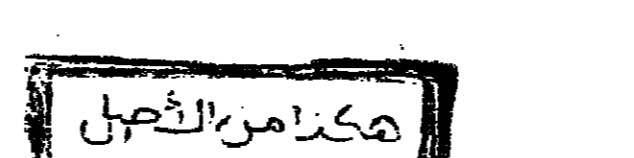
French franc Eurobonds eased by around 1/2 cent yesterday after the terms of the new FT 500 domestic bond were announced.

Yields on seasoned domestic bonds for prime French state names such as Electricite de France moved up around 20 basis points to around 11.50 per cent yesterday.

Prices of foreign bonds in the Deutsche Mark sector were unchanged in this trading.

The market shrugged off the measures announced yesterday by the Bundesbank which aim to limit the expansion of credit and avoid excessive monetary growth.

Trading results for first nine months of 1979 will be announced on Thursday 22 November 1979.





Companies and Markets **INTNL. COMPANY NEWS**

# Orders rising at M.A.N. but profit trend mixed

BY OUR BONN CORRESPONDENT

M.A.N., the West German mechanical engineering and commercial engineering group, raised turnover and orders, intake in the year ended June 30, but earnings were not satisfactory in all sectors. A letter to shareholders states that profits will permit a "suitable" dividend to be paid on basic capital increased by DM 65m to DM 358m.

The company, which is a main holding of the huge Gutehoffnungshütte engineering group, made profits of DM 87m in 1977-78 and raised its dividend from 12 to 14 per cent.

Group turnover last year for

the first time topped DM 7bn, rising by 5 per cent against 1977-78 to DM 7,06bn. Within that figure M.A.N.'s subsidiary, GHH Sterkrade, which specialises in heavy machinery and equipment for the steel and coal mining industries, produced a particularly buoyant performance, with sales up by 21 per cent to DM 742m.

Group order intake rose by 7 per cent to DM 7,24bn, with orders to the parent rising by 14 per cent to DM 4,2bn. Orders in hand at the year-end totalled DM 8,2bn compared with DM 8bn a year earlier.

By division, M.A.N. was able

to boost its commercial vehicle sales, delivering 19,000 lorries, despite completion of a big order for the defence ministry, other domestic demand increased and foreign sales were steady.

Sales of marine engines and diesel motors were about the same as in the previous year, and should receive a further boost this year as the new government programme to help the shipbuilding industry begins to take effect. Orders for plant in the energy production field are described as unsatisfactory, with over-strenuous competition being faced abroad, from the Japanese in particular.

# Veba foresees higher dividend

BY OUR FINANCIAL STAFF

VEBA, the West German energy group, reports sharply higher first-half profits and hints strongly of a further increase in dividend for 1979.

Following net profits of DM 92m for the 1979 first quarter, Veba now reports a six-month surplus of DM 187m (\$102m) compared to DM 84m in 1978. As a result, an increase in dividend "should be possible, bringing the payment up to a satisfactory level".

In 1975, Veba shareholders had their return cut from DM 7.5 to DM 6 a share, and the payment subsequently went down to DM 3 in 1977. Last year the dividend was partly restored to DM 6.

Group external turnover rose 15.7 per cent to DM 17,2bn in the first half. In electrical generation turnover rose 14.7 per cent to DM 3.1bn, while the petroleum and gas sector turnover was up 13 per cent to DM 4.5bn. The trading sector showed turnover growth of 15.5 per cent to DM 5.1bn.

Refineries ran at 88 per cent capacity during the six months, while capacity use in the chemical subsidiary, Chemische Werke Huels, is described as high. In contrast gas sector production fell by 2.4 per cent.

Managing Board chairman, Rudolf von Bennigsen-Foerster, said yesterday that the good trading figures for the first half portend higher profits for 1979 as a whole, even allowing for an economic deterioration in the current six months. In the electricity sector 1979 results should be at about last year's levels, while Veba Oel expects a "normalisation" of profits after a good first-half but a weaker current six months.

Shareholders were told chemicals should chalk up a satisfactory level of profitability this year after a "very positive"

# Wider funding margins boost CBA earnings

BY JAMES FORTH IN SYDNEY

THE COMMERCIAL Bank of Australia (CBA) lifted consolidated profit 24 per cent in the year to June 30 despite the first earnings setback in seventeen years for its finance company offshoot, General Credits Holdings.

The group profit rose from A\$39.4m (U.S.\$33m) to A\$56.4m, prompting the directors to increase the dividend from 16 cents a share. The gain was almost entirely accounted for by banking profits which rose A\$6.8m to A\$21.0m.

The major factors behind the better banking results were improved interest margins reflecting the redevelopment of funds previously held in statutory reserve deposits into higher yielding advances and an increased proportion of total deposits held as interest free current accounts. It also reflected higher interest recoveries, improved cost controls and better returns from overseas operations, particularly New Zealand and New York. The group earnings equalled 53.9 cents a share, compared with 43.5 cents in the previous year.

Subdued business conditions for finance companies resulted in General Credits posting profits A\$1.23m lower at A\$13.15m.

# Across the board jump aids Repco

By Our Sydney Correspondent

REPCO, major automotive parts maker, currently embroiled in a takeover battle for the McEwans hardware group, lifted profit 37 per cent, from A\$17.0m to A\$23.3m in the year to June 30.

The dividend is raised from 8 cents to 9 cents a share and is more than twice covered by earnings of 19.2 cents compared with 15.5 cents in 1977-78.

The major factors contributing to the improvement were substantial increases in demand in all sectors of the company's business, resulting in higher production volumes and greatly increased activity in the manufacturing plants. Results of the recently-acquired Century batteries were also included for the first time.

All of the traditional sections of Repco's business—automotive agricultural equipment, international operations and exports—contributed to the increase.

Total exports of the group rose 20 per cent to A\$17.5m.

With registration of passenger vehicles rising 7.4 per cent, the first increase for four years, Repco's manufacturing companies received considerably increased original equipment schedules, as well as starting supply on new contracts.

# France floats third bond this year

THE FRENCH Treasury will float a 15-year FFf 6bn (US\$1.4bn) state loan with a coupon of 10.8 per cent at the beginning of September, the Economics Ministry announced, yesterday.

The loan, the third Government issue this year, will be offered in the form of FFf 2,000 bonds issued at par. It follows a FFf 3bn State issue in April with a coupon of 9 per cent and a second loan of FFf 4bn in June at 10 per cent.

Including next month's issue, the State will have raised some FFf 13bn on the bond market this year to help finance a budget deficit which is expected to total some FFf 40bn by the end of 1979.

It is generally expected that another state loan for FFf 6bn will be floated before the end of the year thus enabling the Government to finance half its budgetary deficit by long-term borrowing.

# Promodes in U.S. deal

CHATTANOOGA — Promodes, the French food distributor, has offered to buy the operating assets of the Red Food Stores, Inc., for \$23m plus the book value of the assets, officials said they hope to complete the purchase later this year.

Red Food operates 34 supermarkets in South-eastern Tennessee and Northern Georgia. Promodes, based in Caen, Normandy, operates supermarkets, convenience stores and cafeterias in France, Germany and Spain.

AP-DJ

# Kamunting Tin Dredging (M) Berhad

(Incorporated in Malaysia)

Extracts from the Statement by the Chairman, Encik Junus Sudin For the year ended 31st March 1979.

## Past year's performance

Total output of tin concentrate by Nos. 5 and 6 dredges was 7,831 piculs which, in spite of higher running time and throughput, was slightly lower than the previous year's production of 7,997 piculs. This was due mainly to the decline in values of the ground worked.

The increased power charges imposed by the electricity authority in September 1978 contributed significantly to the higher level of operating expenditure for the year. However, the increase was more than offset by the higher proceeds from the sale of tin concentrate as a result of the improved tin price. The average net price received per picul of tin concentrate was \$954 compared with \$845 for the previous year—an increase of 13.9%. This together with the increase in interest receivable resulted in a group profit before taxation of \$2,549,783, a rise of \$710,854 or 38.6% over the previous year. Taxation absorbed \$1,367,823 leaving a balance of \$1,181,940 for distribution to shareholders.

**Dividend**

An interim dividend of 7.5 sen per share less tax was paid to shareholders on 15th January 1979 and subject to shareholders approval at the annual general meeting a final dividend of 40 sen per share less tax will be paid on 20th September 1979.

**Developments during the year**

Pernas Charter Management Sendirian Berhad were appointed share registrars of the company in place of Harrisons & Crossfield (Malaya) Sendirian Berhad with effect from 1st August 1978.

Mining and General Management Co. Limited (MGM), a company incorporated in Thailand, was appointed the company's managers in Thailand with effect from 1st February 1979, and on the same date Pernas Charter Management Sendirian Berhad were appointed technical consultants and advisors to MGM to assist MGM in their role as managers of the company.

**Projections for the current year**

Performance of the two dredges during the first quarter of the current year was satisfactory. Both units are coming to the end of their operating lives because of the very limited reserves available. The boring programme in tailings of No. 5 dredge failed to disclose any significant reserves and unless approval for reissue of a mining title is forthcoming, which could extend the life of No. 5 dredge, this unit is expected to exhaust its reserves before December 1979. Continued representations have been made to the relevant Government authorities for an early issue of the title, but up to the time of writing, no reply has been received.

At the present rate of mining operations No. 6 dredge also is expected to exhaust its reserves and cease operations in the company's property by late October 1979.

I am pleased to report that a satisfactory agreement has been concluded with Timah Matang Sendirian Berhad for the hire of No. 6 dredge to enable that company to work their mining land which adjoins the northern boundary of your company's property. The hiring arrangement is due to commence as soon as No. 6 dredge ceases operations in current reserves, and this will make a useful contribution towards the profitability of the company. In view of the foregoing it is expected that profits for the current year will be substantially reduced unless the dredging life of No. 5 dredge is extended.

Copies of the Report and Accounts and Chairman's Statement can be obtained from the Registrars, Pernas Charter Management Sendirian Berhad, P.O. Box 936, Kuala Lumpur 01-02, Malacca or Chartered Consolidated Limited, Charter House, Park Street, Ashford, Kent TN24 8EQ, and 40 Holborn Viaduct, London EC1P 1AJ.

# Worldwide activity at BNP

Extracts from the 1978 Annual Report of Banque Nationale de Paris and the Statement by the Chairman, M. Pierre Ledoux.

## International Development

In one of the most difficult periods in recent times inflation and unemployment continue to affect most Western nations. Although there have been signs of improvement among some of our principal trading partners, the supply and cost of energy remain major obstacles.

Pressures in Foreign Exchange markets have been reduced by the introduction of the new European Monetary System, and in a generally uncertain climate the world economy and international commerce made moderate progress.

For the French economy the return to a more favourable balance in foreign trade and improved monetary stability are all the more significant. It is vital to ensure a constant supply of energy, which is becoming more and more expensive, by means of exports in markets which are becoming increasingly more competitive; control of inflation is therefore essential. In broad terms there is a need for widespread industrial reorganisation on an even greater scale than is generally realised.

However, many business enterprises in France are expanding and measures taken by the Authorities to direct new savings towards industrial investment have already had an effect. It is to be expected that the financial structure of companies will be strengthened and that this will eventually lead to lower unemployment and improve our competitive position in foreign markets.

Banks are at the very centre of these developments, and they have a strong sense of responsibility to their customers, and a willingness to accept the risks of a changing world.

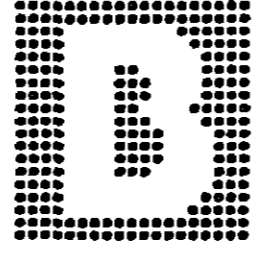
During the year increased activity has led to a new advance in BNP's results. For the first time the consolidated balance sheet total for the Group has exceeded 500 million francs, evidence of BNP's important contribution to the economic strength of the country.

- BNP Offices Opened in 1978/79**
- Branches:
- Düsseldorf (Germany)
  - Madrid (Spain)
  - St Helier (Jersey)
  - Adelaide (Australia)
- Representative Offices:**
- Budapest (Hungary)
  - Stockholm (Sweden)
  - Bogotá (Colombia)
  - Lagos (Nigeria)
- Other openings due in 1979**
- Branches:
- Hamburg (Germany)
  - Rotterdam (Netherlands)
  - Osaka (Japan)
- Representative Offices:**
- Belgrade (Yugoslavia)
  - Amman (Jordan)
  - Abu Dhabi (UAE)

Consolidated Results of the BNP Group for 1978

	1977 Million F	1978 Million F	1978 Million US\$*	Percentage Increase
Consolidated balance sheet total	255,320	325,625	77,900	27
Total customer deposits	131,411	152,267	36,427	15.9
Net consolidated profit	406	528	126	30

\* Calculated as at 31.12.1978 at FF4.180 = US\$1



# Banque Nationale de Paris

Head Office, 16, Boulevard des Italiens, Paris 75009, Tel: 244-45-46 Tlx: 280 605 - 2000 branches in France  
U.K. Subsidiary  
Banque Nationale de Paris Limited  
8-13 King William Street, London EC4P 4HS. Tel: 01-626 5678 Tlx: 883412

# AI Industrial Products Limited

## Interim Report

	Half-year to 30th June 1979	Half-year to 30th June 1978	Year to 31st December 1978
External sales	10,489	9,318	19,099
Trading surplus	676	842	1,830
Depreciation	207	204	424
Trading profit	469	638	1,406
Profit before taxation	251	565	1,218
Profit after taxation and minority interest	246	458	1,034
Dividends per Ordinary Share			
Final	—	—	2.8875p
Interim	0.85p	1.65p	1.65p

Extracts from statement by Alan Lloyd (Chairman)

\* During the half-year to 30th June 1979 a reduction in the volume of external sales was inevitable considering transport difficulties early in the year, severe weather conditions, which particularly restricted production of metal products, and recession in export markets for insulators and associated fittings.

\* Despite sales for the second quarter exceeding those achieved in the earlier quarter by 15% trading surplus for the half-year to 30th June 1979 has fallen by 20% from that achieved during the appropriate period in 1978.

\* Although an improvement in trading surplus has been budgeted for the second half-year this has already been jeopardized by industrial action taken nationally by the engineering unions. Any action of this nature which persists must, in view of the adverse effect on cash flow, lead to a review of the metal products investment programme.

\* In view of the trading uncertainties your Board now declares an interim dividend of 0.85 pence per share which will be paid to Ordinary Shareholders registered at the close of business on 13th September 1979. The final dividend will depend upon prevailing circumstances early in the new year, specifically with regard to the demand for insulators and associated fittings.

August 1979

Bernard Sunley Investment Trust Limited

has sold

**isola 2000**

the French ski resort

to

**Société Internationale pour l'Aménagement et le Développement Foncier S.A.L.**

The undersigned initiated this transaction, acted as financial advisor to Société Internationale pour l'Aménagement et le Développement Foncier S.A.L. and assisted in the negotiations.

Orion Bank Limited

Companies and Markets

WORLD STOCK MARKETS

Early Wall St. prices hover at recent level

INVESTMENT DOLLAR PREMIUM
STOCK PRICES hovered aimlessly near Wednesday's closing level in moderately active trading.

Western Air Lines were dropped. The stock is up two to 16. Southwest Forest Industries eased 1/2 to 22 1/2 after rising 2 1/2.

In Montreal, the market turned mixed in active trading as the Composite Index rose less than a point and two of four leading indices declined.

chemicals, and Veba gained DM1.80 after posting provisional higher first half net profits of 187m.

Boboken, UCB, Fluotremmer and Andre Dumort rose, while Cockerill, Clabecq, Tessenenderlo and CSR fell.

Shipments were over FT 1 firmer, with Ned Lloyd FT 1.20 up, ahead of its first half results.

The market has been at around the same levels all this week, gradually consolidating gains made during the recent four-week rally.

Canada
The market continued higher in active trading as the Composite Index rose 2.3 to 1,667.4.

Share prices eased on technical factors, moderate trading dominated by yesterday's liquidation at the end of the accounting period.

Gold shares tended mixed with a general undertone in quiet trading in line with international bullion prices.

The market closed easier after post-Budget gains. There were two new listings on the mining and oil boards.

Stocks closed mixed in active trading, with gains in Montedison, Sella Viscosa and Assicurazioni Generali eased.

Table with columns: Stock, Aug. 22, Aug. 21, Aug. 20. Lists various stocks like Am International, Amco, Amgen, etc.

Table with columns: Stock, Aug. 22, Aug. 21, Aug. 20. Lists various stocks like Control Data, Corning, Crompton, etc.

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Table with columns: Series, Vol., Last, Jan., April, Last, Stock. Lists various series like ANZ C, ANZ F, etc.

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Indices

Table with columns: Index, Aug. 22, Aug. 21, Aug. 20, High, Low, High, Low. Lists indices like Industrial, N.Y. S&P, etc.

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BASE LENDING RATES

Table with columns: Bank, Rate, Bank, Rate. Lists various banks and their lending rates.

AMSTERDAM

Table with columns: Stock, Price, Div. Yld. Lists various stocks in Amsterdam.

TOKYO

Table with columns: Stock, Price, Div. Yld. Lists various stocks in Tokyo.

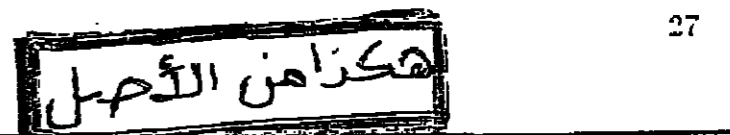
BRUSSELS/LUXEMBOURG

Table with columns: Stock, Price, Div. Yld. Lists various stocks in Brussels/Luxembourg.

AMSTERDAM

Table with columns: Stock, Price, Div. Yld. Lists various stocks in Amsterdam.

Vertical advertisements on the right edge of the page, including 'SR M', 'Insurance', and other financial services.



USSR may import more soya

WASHINGTON—The USSR is expected to increase its soya purchases for the 1979-80 marketing year by 500,000 to 1 million tonnes because recent hot weather may have cut yields from the Soviet sunflower crop and the availability of South American soybeans from next year's crop.

Suspect chrome ore cleared

JOHANNESBURG—All South African chrome ore has been freed from import restrictions by Japan's International Trade and Industry Ministry, Mr. Peter Streicher, managing director of S. A. Manganeses, said here.

Sugar strike hits Guyana

GEORGETOWN—While the local bauxite industry is slowly moving back into production after a month-long strike which reduced output by about two-thirds, the sugar industry remains in the grip of a strike which started on Friday.

Coffee frost threat wanes

BY OUR COMMODITIES STAFF

THERE APPEARS to be no further threat of weather damage to the coffee crop in Brazil, U.S. Department of Agriculture analysts said in Washington yesterday.

They said the annual frost season was coming to an end and latest weather forecasts gave no cause for concern. In London, traders agreed with the USDA view but noted that high frosts had been known to occur in late August in Brazil.

Price rise reduces milk sales

By Our Commodities Staff

THE RECENT 1 1/2 p pint price increase severely depressed retail sales of milk in July. Daily consumption of liquid milk in England and Wales was 600,000 pints lower than in July last year, the Milk Marketing Board said yesterday.

The liquid sales slump of almost 2 per cent coincided with a 2.5 per cent rise in milk production. Deliveries from farms to bottling plants and creameries were 27m litres higher than a year earlier.

This increase, added to the milk diverted from the doorstep, led to a 7.1 per cent rise in the amount of milk processed into dairy products.

UK DAIRYING

BY JOHN CHERRINGTON, AGRICULTURE CORRESPONDENT

THE END of July marked the end of an era for the Milk Marketing Board. After July 31 the board no longer collected any milk in the familiar 10-gallon churn and insisted that farmers either install bulk tanks at their farms, or should their premises be out of reach of the tanker lorry because of poor access roads, the board would provide a mobile vat at a subsidised price.

One of the areas affected was West Wales, an area of small farms and poor communications and where some 350 producers decided to cease delivery on July 31 and manage without the monthly milk cheque. The affair caused some stir in Welsh politics.

The reason is simple. Farms are small and the generally mild climate is ideal for grass growing. Dairying has always flourished here.

With one exception, the farmers I met who were going out of milk were using the ending of churn collection as the excuse for giving up dairying. They were men in their sixties and had no heirs, but they were certainly going to carry on farming. The farms were between 60 and 70 acres and milking, it seemed to me, had only been part of general stock rearing enterprises.

Jamaican sugar crop below target

By Canute James in Kingston

JAMAICA IS expected to produce 266,000 tonnes of sugar this year, 86,000 tonnes below the crop target. Industry sources blame the shortfall on poor weather, mainly floods in June, which devastated several thousands of acres of sugar cane in the west of the island.

The cane and sugar crop decreased production by as much as 30 per cent in some areas. The shortfall in production is not, however, expected to affect the 120,000 tonnes which the island is committed to supplying to the EEC annually under the Lomé convention.

Port dispute

MINNEAPOLIS—Mr. Wayne Horwitz, director of the Federal Mediation and Conciliation Service said talks in the Duluth/Superior port strike were constructive but produced no sign of an imminent settlement.

Negotiations between Continental Grain and the American Federation of Grain Millers had covered a full range of unresolved issues, he said.

End of the churn era

BY JOHN CHERRINGTON, AGRICULTURE CORRESPONDENT

THE END of July marked the end of an era for the Milk Marketing Board. After July 31 the board no longer collected any milk in the familiar 10-gallon churn and insisted that farmers either install bulk tanks at their farms, or should their premises be out of reach of the tanker lorry because of poor access roads, the board would provide a mobile vat at a subsidised price.

One of the areas affected was West Wales, an area of small farms and poor communications and where some 350 producers decided to cease delivery on July 31 and manage without the monthly milk cheque. The affair caused some stir in Welsh politics.

The reason is simple. Farms are small and the generally mild climate is ideal for grass growing. Dairying has always flourished here.

With one exception, the farmers I met who were going out of milk were using the ending of churn collection as the excuse for giving up dairying. They were men in their sixties and had no heirs, but they were certainly going to carry on farming. The farms were between 60 and 70 acres and milking, it seemed to me, had only been part of general stock rearing enterprises.

Land prices may fall soon

BY CHRISTOPHER PARKES

FARM LAND is likely to remain a sound hedge against inflation even though future increases in farming incomes are unlikely to justify any repetition of recent surges in land prices.

The rate of return is now so low that values may level off or even fall slightly in the next year or so, he says. But continuing demand from financial institutions, overseas buyers and farmers themselves will probably prevent a substantial decline.

Writing in the bank's Economic Bulletin, Mr. Johnson points out that since the war land prices have risen 38 times compared with a nine-fold increase in retail prices in the same period.

The real value of farm land reported T. G. Roddick. The market remained within a narrow trading range to close at 118.00. Values finished 0.15 to 0.60.

End of the churn era

BY JOHN CHERRINGTON, AGRICULTURE CORRESPONDENT

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Philippines copper exports higher

MANILA—Philippine Copper exports this year are projected to reach \$375m—almost \$3m more than last year.

A trade ministry spokesman said copper concentrates available for export this year will be about 1.23m dry tonnes containing 341,000 tonnes of metal, a rise of more than 29 per cent from 1978.

An industry report prepared by the Private Development Corporation of the Philippines noted that production and shipment problems in Zambia and Zaire, continued labour unrest in Peru and two of Canada's largest copper mines have put pressures on world copper supplies.

Soviet beet

RATZEBURG—The warm weather with sufficient rainfall during the past week has been particularly favourable for the Soviet sugar beet crop, and also beneficial to those in Poland and Czechoslovakia.

West German sugar statistician F. O. Licht said in his weekly crop report.

BRITISH COMMODITY MARKETS

BASE METALS

Table with columns for metal types (Copper, Tin, Zinc, Lead, Aluminium) and price changes. Includes sub-sections for Tin, Zinc, Lead, and Aluminium.

COPPER

Table showing copper prices for various grades and quantities.

WIREBARS

Table showing wirebar prices for different specifications.

AMSTERDAM METAL TRADING

Table showing metal trading data for Amsterdam.

L.G. INDEX LIMITED

Table showing L.G. Index Limited commodity futures.

CORAL INDEX

Table showing Coral Index close at 462.467.

INSURANCE BASE RATES

Table showing insurance base rates for Vanburgh Guaranteed and Property Growth.

MYSON GROUP LIMITED advertisement: Manufacturer of the widest range of heating, ventilating and air conditioning equipment in the U.K. Interim Statement.

BRITISH COMMODITY MARKETS

GRAINS

Table showing grain prices for various types and quantities.

WHEAT

Table showing wheat prices for different grades.

BARLEY

Table showing barley prices for various types.

NICKEL

Table showing nickel prices for different grades.

SILVER

Table showing silver prices for various quantities.

COCAOA

Table showing cocoa prices for different types.

RUBBER

Table showing rubber prices for various grades.

COFFEE

Table showing coffee prices for different types.

SOYABEAN MEAL

Table showing soyabean meal prices for various grades.

PRICE CHANGES

In tonnes unless otherwise stated.

Table showing price changes for various commodities.

SUGAR

Table showing sugar prices for different grades.

AMERICAN MARKETS

Table showing American market prices for various commodities.

EUROPEAN MARKETS

Table showing European market prices for various commodities.

WOOL FUTURES

Table showing wool futures prices for different grades.

MEAT COMMISSION

Table showing meat commission prices for various types.

COTTON

Table showing cotton prices for different grades.

SMITH/VEGETABLES

Table showing Smith/vegetables prices for various types.

INDICES

FINANCIAL TIMES

Table showing Financial Times indices for various periods.

MOODY'S

Table showing Moody's indices for various periods.

REUTERS

Table showing Reuters indices for various periods.

GRIMSBY FISH

Table showing Grimsby fish prices for various types.

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AUTHORISED UNIT TRUSTS

Table listing various unit trusts such as Abbey Unit Trst. Mgmts. (a), Abbey Unit Trst. Mgmts. (b), Abbey Unit Trst. Mgmts. (c), etc., with columns for name, manager, and other details.

Table listing insurance and property bonds, including Abbey Life Assurance Co. Ltd., Abbey Life Assurance Co. Ltd. (a), Abbey Life Assurance Co. Ltd. (b), etc., with columns for name, address, and other details.

Table listing various unit trusts and funds, including Abbey Unit Trst. Mgmts. (a), Abbey Unit Trst. Mgmts. (b), Abbey Unit Trst. Mgmts. (c), etc., with columns for name, manager, and other details.

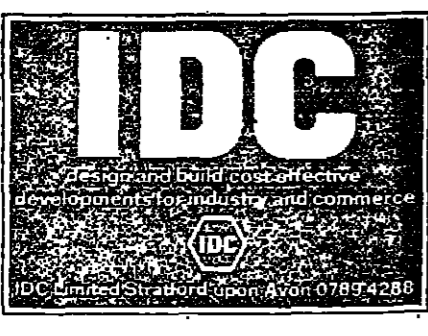
Table listing offshore and overseas funds, including Alexander Fund, Alexander Fund, Alexander Fund, etc., with columns for name, manager, and other details.

NOTES
Prices do not include 5% commission, which is indicated, and are in sterling unless otherwise indicated.

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FT SHARE INFORMATION SERVICE

FOOD, GROCERIES, ETC.

BRITISH FUNDS

Table of British Funds with columns for Name, Price, and Yield. Includes sections for 'Shorts' (Lives up to Five Years) and 'Five to Fifteen Years'.

FOREIGN BONDS & RAILS

Table of Foreign Bonds & Rails with columns for Country, Name, Price, and Yield.

AMERICANS

Table of American Stocks with columns for Name, Price, and Yield.

BANKS & HP—Continued

Table of Banks & HP with columns for Name, Price, and Yield.

CHEMICALS, PLASTICS—Cont.

Table of Chemicals & Plastics with columns for Name, Price, and Yield.

ENGINEERING—Continued

Table of Engineering with columns for Name, Price, and Yield.

Hire Purchase, etc.

Table of Hire Purchase, etc. with columns for Name, Price, and Yield.

DRAPERY AND STORES

Table of Drapery and Stores with columns for Name, Price, and Yield.

BEERS, WINES AND SPIRITS

Table of Beers, Wines and Spirits with columns for Name, Price, and Yield.

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BUILDING INDUSTRY, TIMBER AND ROADS

Table of Building Industry, Timber and Roads with columns for Name, Price, and Yield.

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CANADIANS

Table of Canadian Stocks with columns for Name, Price, and Yield.

BANKS AND HIRE PURCHASE

Table of Banks and Hire Purchase with columns for Name, Price, and Yield.

ELECTRICALS

Table of Electricals with columns for Name, Price, and Yield.

INTERNATIONAL BANK

Table of International Bank with columns for Name, Price, and Yield.

COMMONWEALTH & AFRICAN LOANS

Table of Commonwealth & African Loans with columns for Name, Price, and Yield.

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CHEMICALS, PLASTICS

Table of Chemicals & Plastics with columns for Name, Price, and Yield.

ENGINEERING MACHINE TOOLS

Table of Engineering Machine Tools with columns for Name, Price, and Yield.

FOOD, GROCERIES, ETC.

Table of Food, Groceries, Etc. with columns for Name, Price, and Yield.

HOTELS AND CATERERS

Table of Hotels and Caterers with columns for Name, Price, and Yield.

INDUSTRIALS (Miscellaneous)

Table of Industrials (Miscellaneous) with columns for Name, Price, and Yield.

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MINES—Continued

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists various mining stocks like Anglo, BHP, etc.

TINS

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists tin mining stocks like Anglo, etc.

COPPER

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists copper mining stocks like Anglo, etc.

MISCELLANEOUS

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists various other stocks.

NOTES

Unless otherwise indicated, prices and net dividends are in pence and denominated in pence. Estimated price/earnings ratios and yields are based on the latest available figures. Dividends are shown in pence unless otherwise indicated. Yields are calculated on the basis of the distribution date. Dividends are shown in pence unless otherwise indicated. Yields are calculated on the basis of the distribution date. Dividends are shown in pence unless otherwise indicated. Yields are calculated on the basis of the distribution date.

REGIONAL MARKETS

Table with columns: Region, Stock, Price, % Chg, Div, Yield, P/E. Lists regional market data.

OPTIONS

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists options data.

FINANCE, LAND—Continued

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists finance and land stocks.

OILS

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists oil stocks.

OVERSEAS TRADERS

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists overseas trader stocks.

RUBBERS AND SISALS

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists rubber and sisal stocks.

TEAS

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists tea stocks.

Sri Lanka

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists Sri Lanka stocks.

MINES

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists mine stocks.

CENTRAL RAND

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists central rand stocks.

EASTERN RAND

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists eastern rand stocks.

FAW WEST RAND

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists faw west rand stocks.

O.F.S.

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists O.F.S. stocks.

FINANCE

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists finance stocks.

DIAMOND AND PLATINUM

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists diamond and platinum stocks.

CENTRAL AFRICAN

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists central african stocks.

INVESTMENT TRUSTS—Cont.

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists investment trusts.

PROPERTY—Continued

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists property stocks.

SHIPPING

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists shipping stocks.

SHOES AND LEATHER

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists shoes and leather stocks.

SOUTH AFRICANS

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists south african stocks.

TEXTILES

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists textile stocks.

TOBACCO

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists tobacco stocks.

TRUSTS, FINANCE, LAND

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists trusts, finance, and land stocks.

PROPERTY

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INSURANCE—Continued

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists insurance stocks.

LEISURE

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists leisure stocks.

MOTORS, AIRCRAFT TRADES

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists motors and aircraft trades stocks.

Commercial Vehicles

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists commercial vehicles stocks.

Components

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Garages and Distributors

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists garage and distributor stocks.

NEWSPAPERS, PUBLISHERS

Table with columns: Stock, Price, % Chg, Div, Yield, P/E. Lists newspaper and publisher stocks.

PAPER, PRINTING

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INSURANCE

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